NASA TechTracS

User Manual

Prepared by
Knowledge Sharing Systems
Raleigh, NC

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Introduction

Foreword

NASA TechTracS was created using 4th Dimension in September 1992 with 24 tables and approximately 400 data fields. As of the writing of this manual in June 1999 (version FY99.02.00), there are 129 tables and approximately 2,000 data fields. While the number of tables and fields have grown by 500%, a consistent interface has remained making the navigation around NASA TechTracS user friendly.

The super user training manual should enable the beginner user to get comfortable using NASA TechTracS and at the same time should expand the knowledge of all levels of NASA TechTracS users.

Manual Conventions

The following conventions are used throughout the Super User Training Manual for easier readability:

Table Reference - a table reference is denoted by brackets before and after the table name
Example: [Technology]

Field Reference - a field reference is denoted by a table reference followed by the field name and the word field.
Example: [Technology]Case Number field

Values - quotes are used to denote values
Example: "LAR-11001-1" for [Technology]Case Number field

Menu - Bold => With arrows => denoting the different => Levels
Example: From the **File** menu, select **File** => **Page Setup...**

Button -italics is used to denote buttons
Example: click the *Cancel* button...

Methods - methods are denoted by Bold text
Example: **TechOrgCodes**

Variable - variables are denoted by Bold Italic text.
Example: ***vTTName*** (which stands for the Tech Transfer Officer Name - ie "Jim Aliberti")

NOTE: NASA TechTracS Expressions includes both methods and variables.

NASA TechTracS Resources

A number of useful NASA TechTracS websites are available on the web including:

NASA TechTracS Support................http://nasatechtracs.support.knowledgesharing.com
NASA TechTracS Management.........http://nasatechtracs.management.knowledgesharing.com
NASA eNTRe...................................http://nasaentre.knowledgesharing.com
NASA TechTracS TechFinder...........http://technology.larc.nasa.gov
NASA TechTracS CMT....................http://transit.larc.nasa.gov
NASA TechTracS Bug Reporting......(link from NASA TechTracS Support site)
NASA TechTracS HQ Web Site........http://webawntts.larc.nasa.gov
NASA TechTracS Patent Statistics... http://webawntts.larc.nasa.gov/scripts/nls_ax.dll/twPatent

NOTE: Most websites require a username and password. Please call technical support for the appropriate password. Technical support can be reached at 919-790-9895 x2.

4th Dimension (4D)

4th Dimension is a relational database as opposed to a flat file database (i.e. excel). This allows the information to be stored more efficiently (less storage space), easier data entry (data does not have to be entered more than once), and provides a powerful way of analyzing the data (i.e. Relate function that will be described later).

4th Dimension also uses client server technology to act as a data server which is used in other products such as Oracle and Sybase. Client server technology increases the performance of data server (i.e. 4D Server) over file sharing technology (i.e. FilemakerPro). 4D is also an object server which allows the developers of 4D applications to easily create/modify applications. In other words, 4D Server serves the objects used to create the graphical user interface and maintains all the objects in a single software code base.

The client is the software application that is installed on every users computer that is a user of NASA TechTracS. You will need a copy of 4th Dimension client to complete the Super User Training.

NOTE: For more information on 4th Dimension, please visit http://www.acius.com.

Mac Client

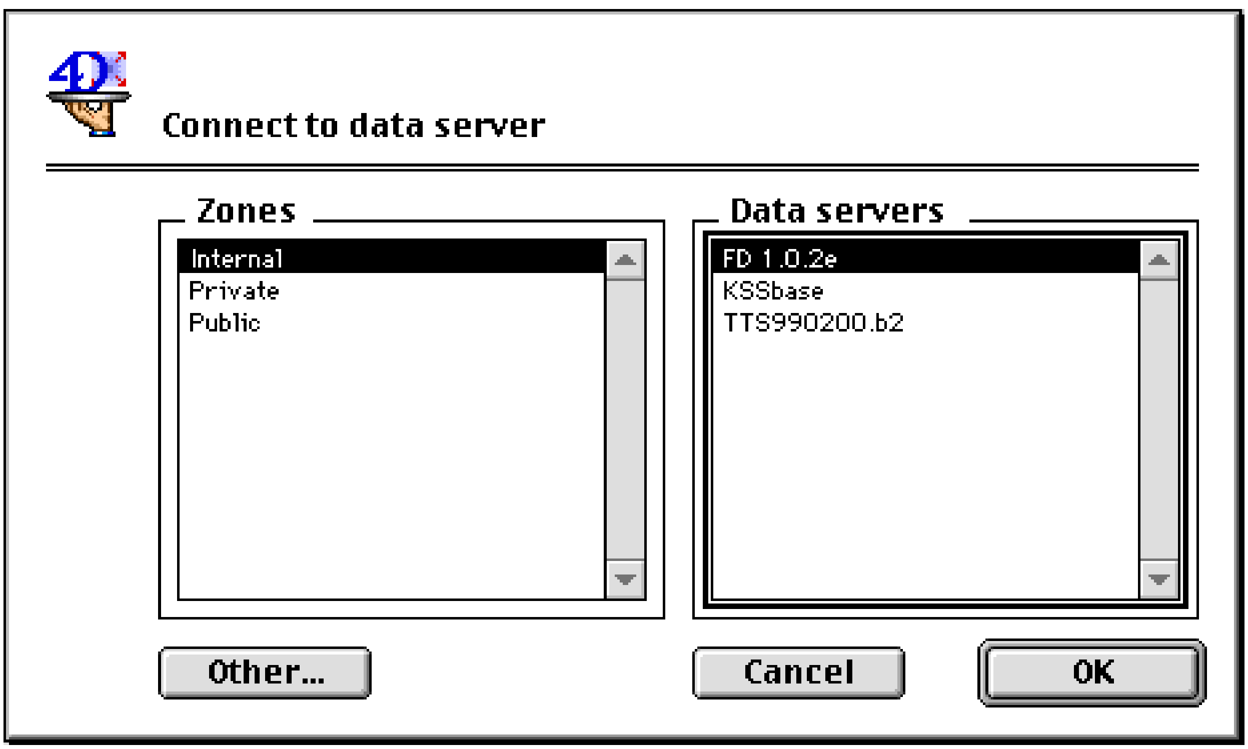
The Mac client for 4D is installed as directed by the user installing the application. To start the client, simply double-click on it.

Mac Client

After starting the 4D Client, one of two possible Connect to Data Server dialog appears.

The first possible dialog uses Open Tpt ADSP PPC (Open Transport Apple Data Stream Protocol Power PC) network component to display the available 4D Servers. The apple zones appear on the left and the 4D Data servers available in selected zone appear on the right.

Client Installation Window

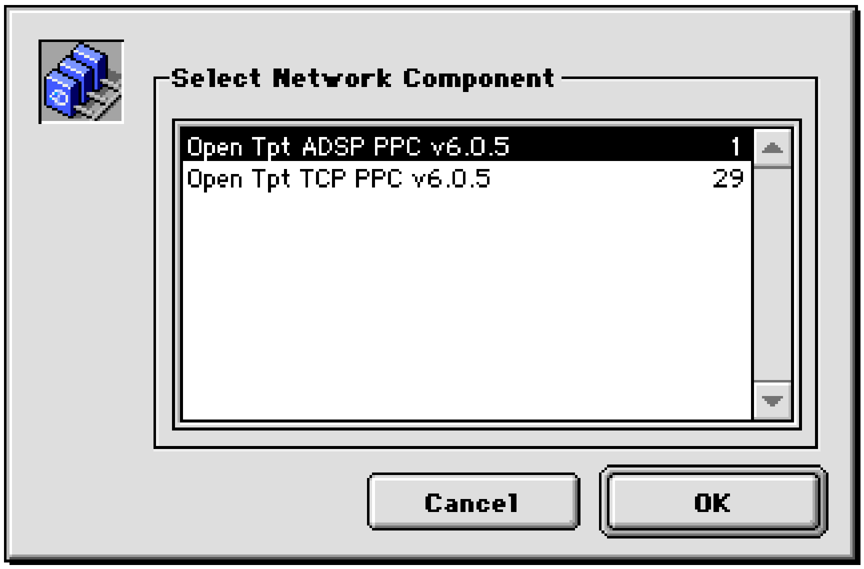


NOTE: This is the default dialog on a new 4D Client installation.

In order to connect to the any server, double-click on the server name or click on the name and click on the *OK* button.

If the 4D server is not available in any zone, then the user will need to use the Open Tpt TCP PPC (Open Transport TCP/ Power PC) network component to connect to NASA TechTracS. To switch to Open Tpt TCP PPC, click on the *Other...* button.

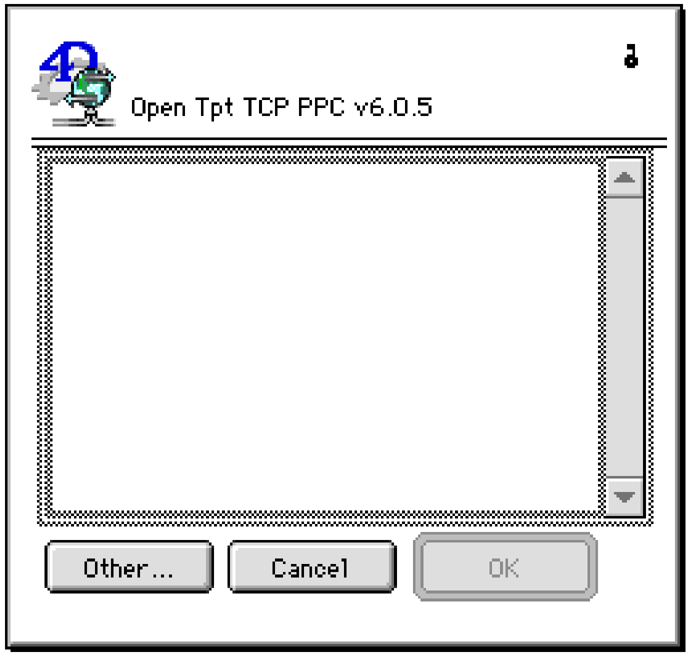
Select Network Component Dialog



NOTE: If the NASA TechTracS server is a Windows machine, you will need to connect to NASA TechTracS using the Open Tpt TCP PPC network component.

After selecting the Open Tpt TCP PPC network component, the second possible connect to 4D server dialog is displayed.

Open Tpt TCP PPC Dialog



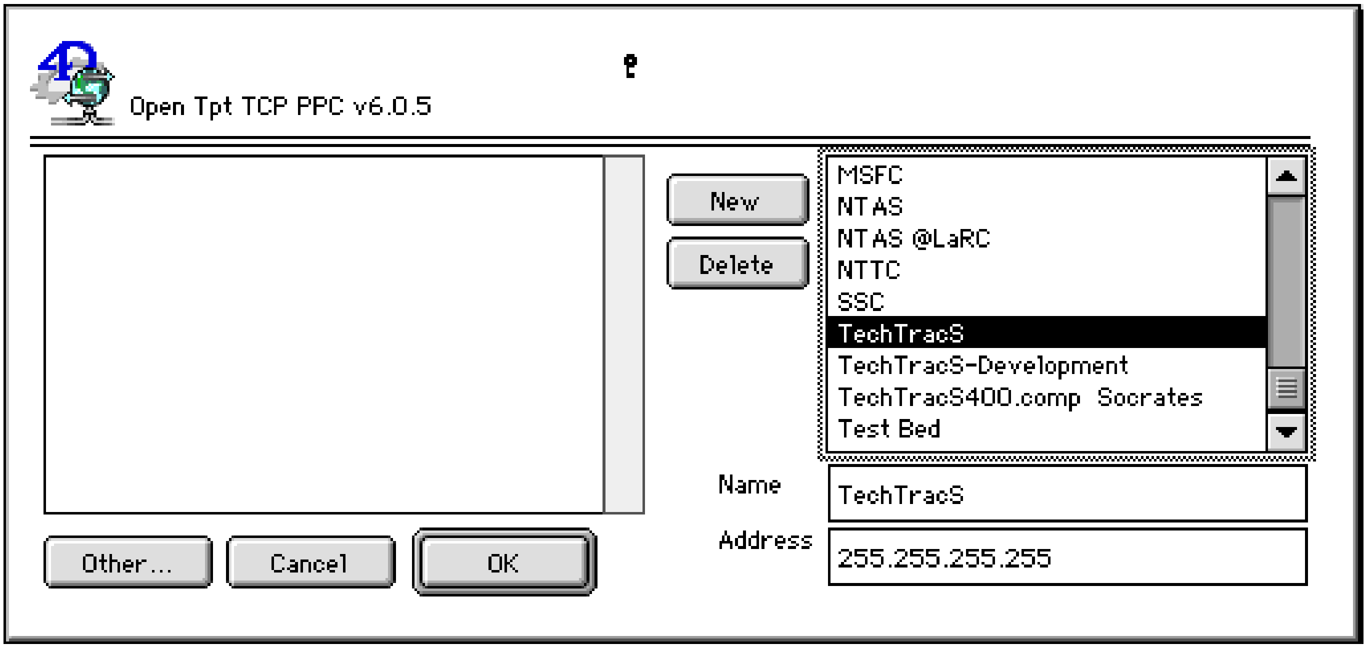
In order to connect to the any server, double-click on the server name or click on the name and click on the *OK* button.

If the NASA TechTracS server is not showing, then the user must click on the key icon located in the upper right hand corner of the dialog and register the NASA TechTracS location.

Key Icon

After clicking on the Key icon, the Open Tpt TCP PPC dialog is expanded to allow the user to create a new 4D Server entry. To create a new entry, type the name of the server in the Name box and enter the Address (IP Address). Then click the *New* button to add the entry into the choice box

Expanded Open Tpt TCP PPC Dialog

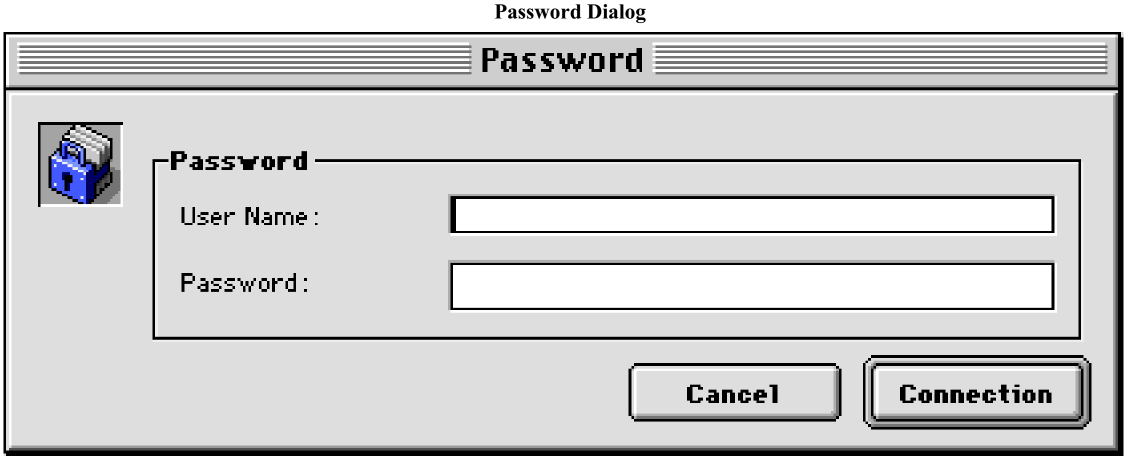


NOTE: The Connect to 4D server dialog will open to the last network component used.

In order to connect to the any server, double-click on the server name or click on the name and click on the *OK* button.

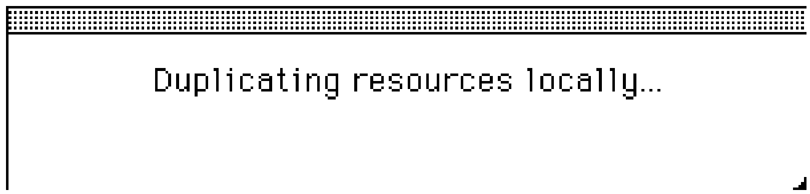
After attempting to connect to the server, the Password dialog appears. Enter your user name, password and click the *Connection* button. The User Name is not case sensitive but the Password is case sensitive. The password dialog will remain on screen until both a valid User Name or Password are entered.

Password Dialog



After the *Connection* button is clicked, the duplicating resources locally dialog is displayed indicating that your resources are being duplicated.

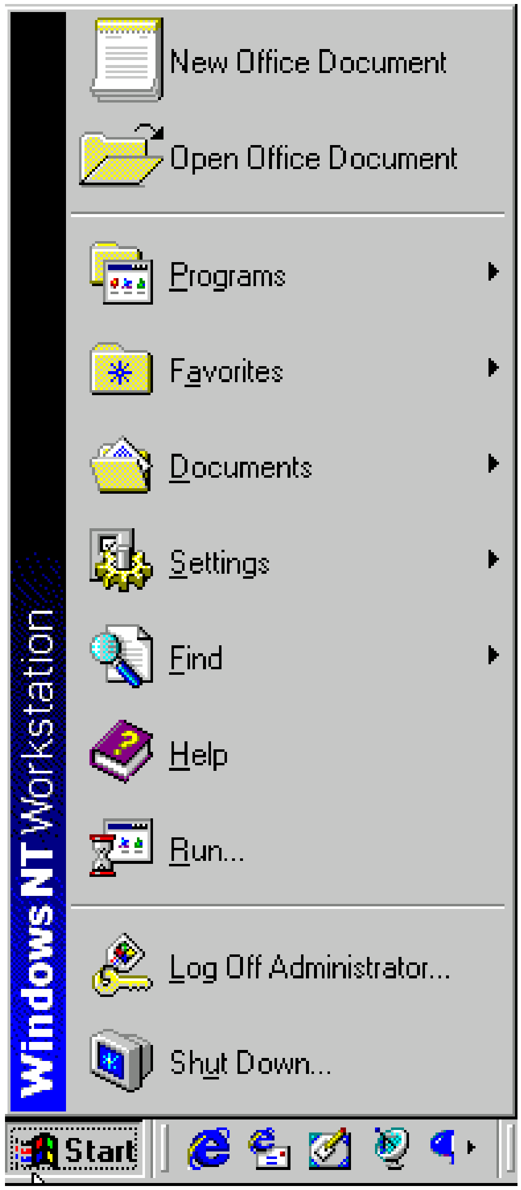
Duplicating Resources Locally Dialog



Windows Client

The windows client for 4D is usually stored in the ACI folder (i.e. C:\ACI\Programs\4DCLI605). When the client is installed, the ACI folder is accessible from the Windows Start button.

Windows Start Button

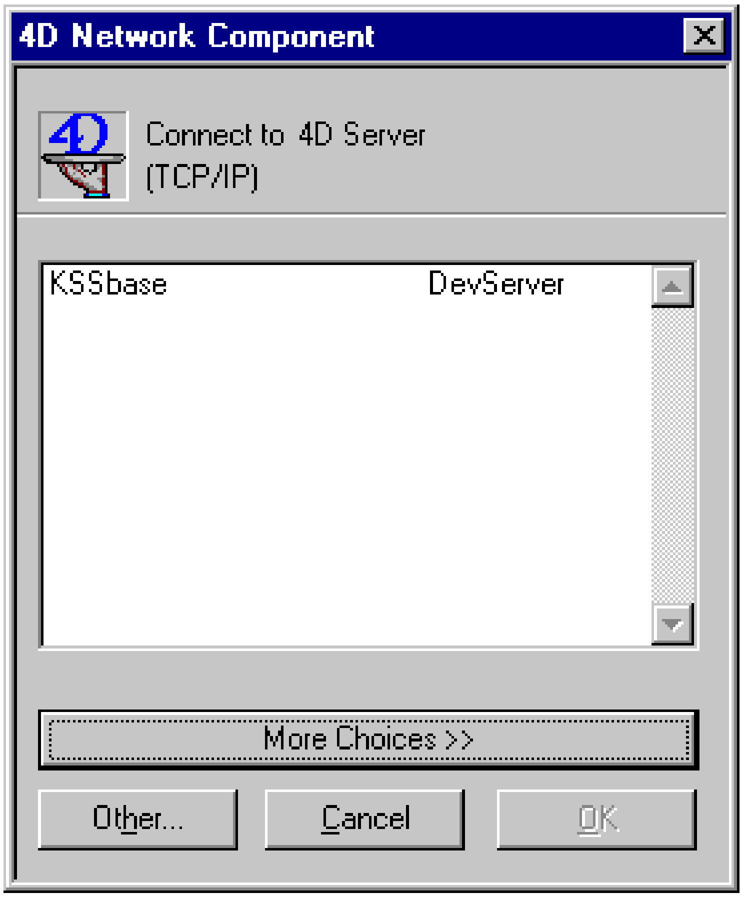


To start the windows client, navigate to Program/ACI/4D Client 6.05/4D Client 6.05 using the Start button or simply double-click on the 4DClient.exe icon.

Windows Client

After starting the 4D Client, the Connect to 4D Server dialog is displayed.

Connect to 4D Server Dialog

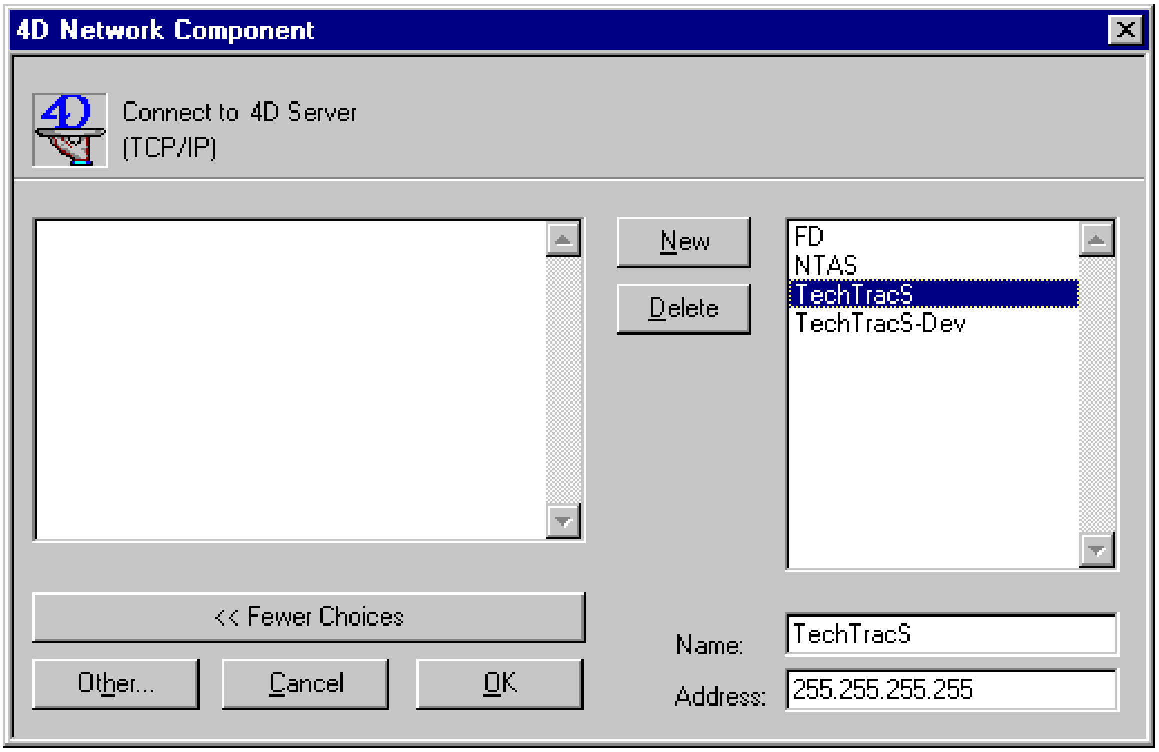


In order to connect to the any server, double-click on the server name or click on the name and click on the *OK* button.

If the NASA TechTracS server is not showing, then the user must click on the *More Choices* >> button.

After clicking on the *More Choices* >>, the Connect to 4D Server dialog is expanded to allow the user to create a new 4D Server entry. To create a new entry, type the name of the server in the Name box and enter the Address (IP Address). Then click the *New* button to add the entry into the choice box.

Expanded Open Tpt TCP PPC Dialog

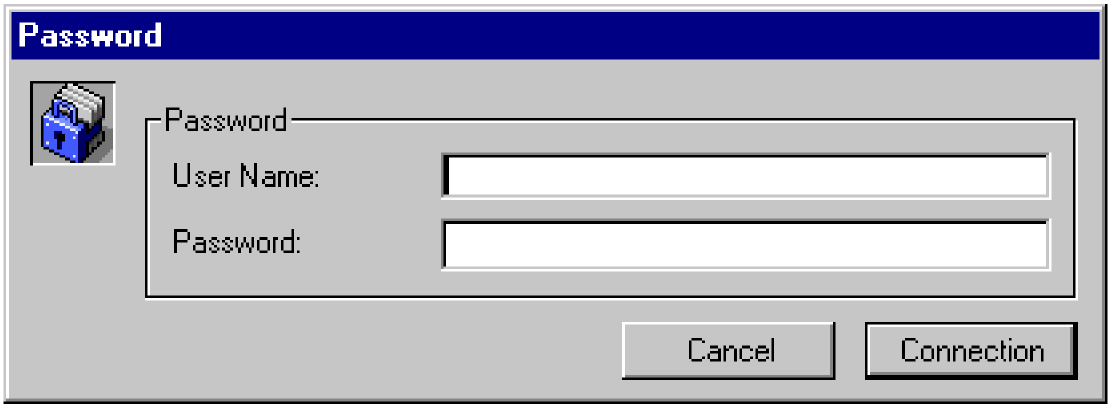


NOTE: While ACI does support other communications protocols, NASA TechTracS only uses the TCP/IP network Component on the PC for stability.

In order to connect to the any server, double-click on the server name or click on the name and click on the *OK* button.

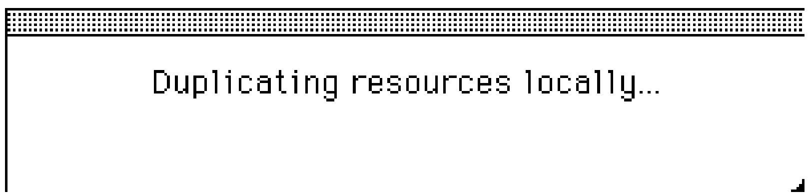
After attempting to connect to the server, the Password dialog appears. Enter your user name, password and click the *Connection* button. The User Name is not case sensitive but the Password is case sensitive. The password dialog will remain on screen until both a valid User Name or Password are entered.

Password Dialog



After the *Connection* button is clicked, the duplicating resources locally dialog is displayed indicating that your resources are being duplicated.

Duplicating Resources Locally Dialog



The first window to appear as the user signs into NASA TechTracS is Daily Message window. It will appear showing any messages in a scrollable area. The messages contained in the scrollable area are sorted by their Start Date in ascending order. While the Daily Message dialog is up, the system startup sequence will continue on and bring up the Control Center. The Daily Message window will remain until the user clicks on the *Done* button.

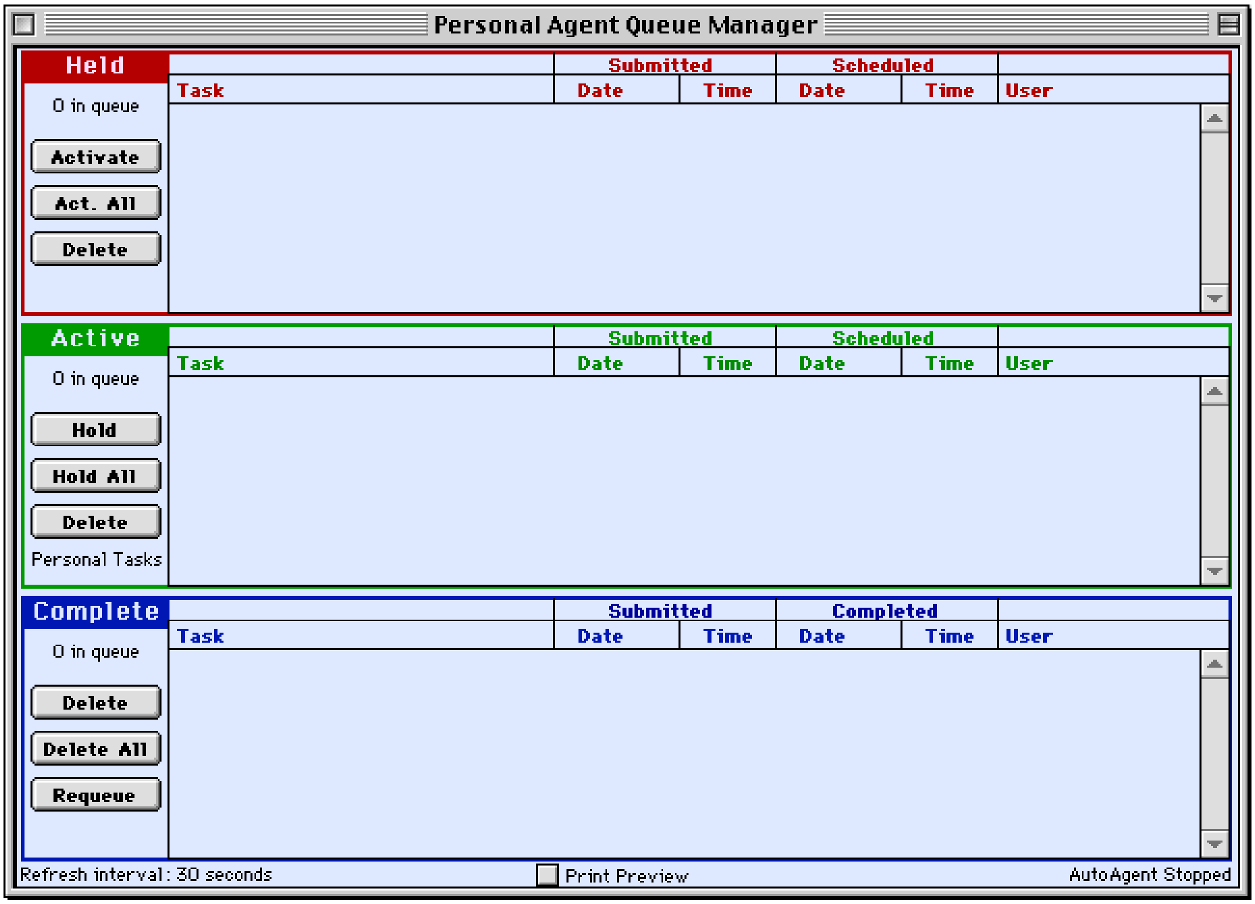
NASATechTracS Daily Message window

After loading completes, the Control Center displays.

Control Center

If the Personal AutoAgent preference is checked, the Personal AutoAgent Queue Manager window is displayed behind the Data Control Panel.

Personal AutoAgent Queue Manager



NASA TechTracS Tables

NASA TechTracS contains 143 tables and approximately 2,000 data fields. Each table has an assigned number. The relevance of the assigned number will be discussed later in the manual.

Some of the NASA TechTracS tables are able to WAN (transmit data to Agencywide TechTracS). Whenever, a record from a WANable (WAN to HQ equals Yes) table is added, modified or deleted, a WAN record is created so that the data can be transmitted to Agencywide TechTracS.

Number	Table Name	WAN to HQ
,8	Action Item	
38	Assignment	
132	Assistance Metrics	
24	Awards	
129	Awards by Innovator	
128	Awards Chronology	
127	Award Process	
65	BLI	
18	CG Chronology	Yes
66	COG	Yes
105	Commercialization Eval Criteria	Yes
75	Commercialization Metrics	Yes
131	Commercialization Metric Sets	Yes
80	Commercial Leads	
12	Company	Yes
32	Company Chrono	
138	Company CTG Codes	
39	Confirm_License	
116	Congress	Yes
47	Congressional Districts	
7	Constants	Yes
9	Contract_Grant	Yes
26	Contract Reports	
40	Contract Stats	Yes
134	Corp Tech Group	
135	CTG SubGroup	Yes
48	Daily Message	Yes
5	Deletions	Yes
14	Documents	Yes
25	Enclosures	
102	External_Application_Usage	
51	GRC Technology Evaluation	

Number	Table Name	WAN to HQ
13	Inquiry	Yes
61	Inventory	Yes
89	KeyCompany	
87	KeyContract	Yes
123	KeyPartnership	
88	KeyPeople	Yes
91	KeySuccess	Yes
90	KeyTechnology	
112	KeyTOPS	
104	Lead Chronology	Yes
27	License	Yes
30	License Chronology	Yes
108	License Milestones	
109	License Milestones Chronology	
106	License Reports	
107	License Reports Content	
79	License Royalties	
29	License Royalty Distribution	
110	License Royalty Recipients	
28	License Technologies	
20	List	
35	Maintenance Fee	
21	Multimedia	
34	Other Contracts	
49	Outside Patent Preparation	
64	Partners	
67	Partners FY	Yes
63	Partnerships	
74	Partnership Assistance	
86	Partnership Chronology	Yes
103	Partnership NTIS	
124	Partnership NTRs	Yes
126	Partnership Org Codes	Yes
78	Partnership Program Number	
125	Partnership Program Number FY	
122	Partnership SIC	Yes
36	PAT Statistics	Yes
76	PAT Stats Month	Yes
11	People	

Number	Table Name	WAN to HQ
23	People Chrono	
137	People CTG Codes	
31	PMC Program	Yes
16	Process	Yes
72	Products_Services	Yes
62	Program Code	Yes
71	Program Office	Yes
42	PTO Actions	Yes
19	Publication	Yes
46	Reminder Condition	
68	Reminder Condition Items	
69	Reminder Log	Yes
130	Reminder Task	Yes
70	Reminder Task Items	Yes
55	SBIR_STTR Funding Request	
54	SBIR_STTR Technical Report	Yes
117	Shadow	Yes
85	sparexxx	Yes
2	Structure	Yes
52	Subcontracts	Yes
22	Success Story	Yes
100	Success Story Assist	Yes
101	Success Story Assoc Docs	Yes
120	Success Story Chronology	Yes
121	Success Story Program Areas	Yes
119	Success Story Technologies	Yes
15	Technology	Yes
84	Technology Related Cases	Yes
83	Tech Additional Documentation	Yes
17	Tech Chronology	Yes
139	Tech Comm Activities	
133	Tech Comm Eval Criteria	Yes
10	Tech Innovator	Yes
33	Tech Maint Fee	Yes
43	Tech Org Codes	Yes
77	Tech Program Areas	Yes
111	TOPS	Yes
115	TOPS Category	Yes
113	TOPS Related Technologies	Yes
114	TOPS WWW References	Yes

Number	Table Name	WAN to HQ
4	User	Yes
44	Waiver	Yes
81	Web Statistics	Yes
118	xAudit	Yes
93	xDisciplines	
50	xForeign Filing	
37	xHTML	
96	xInvNTIS	Yes
97	xInvSIC	
3	xKeywords	Yes
56	xNTIS Category	Yes
57	xNTIS Subs	Yes
53	xOrg Codes	Yes
92	xPeopleType	Yes
6	xSEQ	
59	xSICIndustry	Yes
58	xSICMajorGroups	
60	xSICSubIndustry	Yes
98	xSSNTIS	
99	xSSSIC	
136	xTechCTGCodes	Yes
94	xTechNTIS	
95	xTechSIC	
41	xText Codes	
1	xToolkit	
45	xWAN Post	
73	xWAN Web	
82	xWebData	

Keyboard Shortcuts

Keyboard shortcuts are meant to be a quick and easy way to perform an operation that would otherwise require the user to move the mouse and select or click on an area of NASA TechTracS. Keyboard shortcuts can be classified into the following categories:

Navigational Shortcuts
Menu Bar Shortcuts

Navigational Shortcuts

From the Data Control Panel, the following navigational shortcuts are available:

Shortcut	Macintosh	PC
New Data Window	"Opt + click *OK*"	"Alt + click *OK*"

From the List Window, the following navigational shortcuts are available:

Shortcut	Macintosh	PC
Next Table	"Cmd + up arrow"	"Ctrl + up arrow"
Previous Table	"Cmd + down arrow"	"Ctrl + down arrow"
Data Control Panel	"Cmd + ."	"Ctrl + ."
New Data Window	"Opt + choose table"	"Alt + choose table"

From the Input Window, the following navigational shortcuts are available

Shortcut	Macintosh	PC
Next Page	"Cmd + up arrow"	"Ctrl + up arrow"
Previous Page	"Cmd + down"	"Ctrl + down arrow"
Next Record	"Cmd + right arrow"	"Ctrl + right arrow"
Previous Record	"Cmd + left arrow"	"Ctrl + left arrow"
Cancel Record	"Cmd + ."	"Ctrl + ."

Menu Bar Shortcuts

Shortcut	Macintosh	PC
File => Print	"Cmd + P"	"Ctrl + P"
File => Quit	"Cmd + Q"	"Ctrl + Q"
Edit => Undo	"Cmd + Z"	"Ctrl + Z"
Edit => Cut	"Cmd + X"	"Ctrl + X"
Edit => Copy	"Cmd + C'	"Ctrl + C"
Edit => Paste	"Cmd + V"	"Ctrl + V"
Edit => Select All	"Cmd + A"	"Ctrl + A"
Enter => New	"Cmd + N"	"Ctrl + N"
Enter => Modify	"Cmd + M"	"Ctrl + M"
Enter => Delete	"Cmd + D"	"Ctrl + D"
Select => Show All	"Cmd + G"	"Ctrl + G"
Select => Show Subset	"Cmd + H"	"Ctrl + H"
Select => Find	"Cmd + F"	"Ctrl + F"
Select => Quick Query	"Cmd + S"	"Ctrl + S"
Select => Query Editor	"Cmd + E"	"Ctrl + E"
Select => Query by Index	"Cmd + I"	"Ctrl + I"
Select => Order Selection	"Cmd + T"	"Ctrl + T"
Report => Quick Report	"Cmd + R"	"Ctrl + R"
Report => Labels	"Cmd + J"	"Ctrl + J"

Tutorial

Tutorial # 1 - Sign into NASA TechTracS (2 Minutes)

1. Sign into NASA TechTracS using 4D Client.

2. After signing in, close the Personal Agent window.

Control Center

Introduction

Overview
Sections

Overview

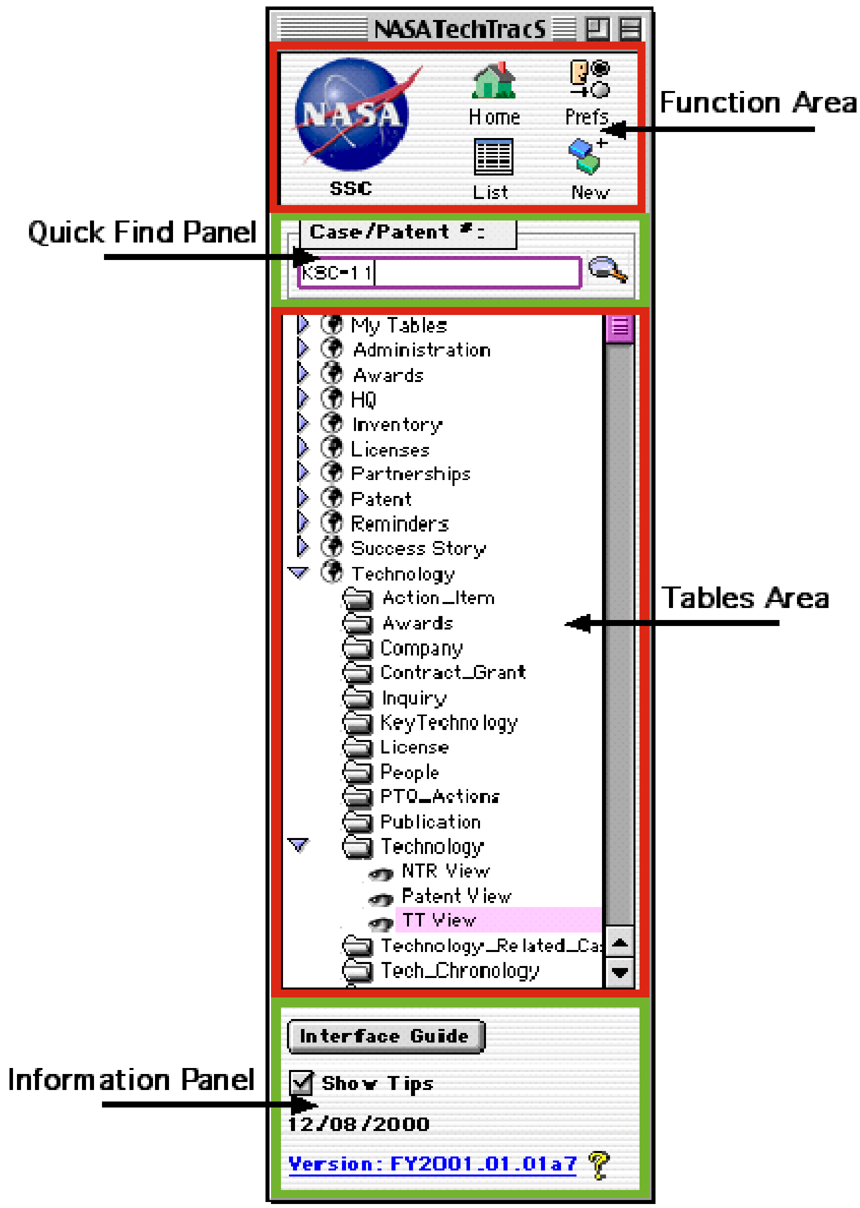
The *Control Center* (which replaces the Data Control Panel) is the first interactive window displayed after the user has logged on to NASA TechTracS. It is the primary gateway or menu to all of the other functions in the system.

Control Center

Sections

The Control Center has four distinct areas: Function Area, Quick Find Panel, Table Area, and the Information Panel. Each area is described in more detail in the following sections.

Control Center Sections



Control Center - Interface

Overview

Overview

The Control Center normally opens on the left side of the monitor and is available at all times. From the Control Center, tables may be selected and opened, QuickFind queries may be performed, or new records added.

Control Center Interface Key

This section describes all the functions and features of the Control Center. Each letter corresponds to the area designated on the "Control Center Interface Key" image on page 1 of this section.

a. The NASA Field Center abbreviation.

b. The Home button has two modes: *Set* and *Use*.

   To set the Home Setting hold down the option key and click on the Home button. The currently selected Table Group, Table, and View will be stored. If there is a value in the QuickFind entry area, it too will be stored.

   To use the Home Setting simply click the Home button. The previously stored settings will be restored and a Data Window for the selected table will be opened. If a QuickFind value had been stored the QuickFind query will be performed to create a selection of records for the table.

c. The Prefs button displays the traditional NASA TechTracS Preferences window.

d. Clicking the List button will cause a Data Window to be displayed for the selected table. If a Data Window is already open, the table will be displayed in that window. To force the table to open in a new Data Window hold down the option key when clicking the List button.

e. To add a new record to the selected table click the New button. A Data Window will display for the selected table in which a new record is created. If a Data Window is already open, the new record will be created in that window.

f. The QuickFind panel consists of three parts: (f1) the QuickFind Prompt, (f2) the QuickFind Entry Area, and (f3) the QuickFind button .

   When a table is selected from the Table Group list (or a view is selected if the table has multiple views) the QuickFind Prompt changes to the name of the field that will be used when the QuickFind query executes. If this prompt is blank (and the QuickFind Entry Area, and the QuickFind button are not visible) it is because the QuickFind function is not available for the selected table.

   Enter a value in the QuickFind Entry Area upon which to query the selected table.

   Click the QuickFind button or type command-s to execute the QuickFind. The resulting records will be displayed in a Data Window for that table.

g. The Table Group list organizes the many tables of NASA TechTracS into logical groups of tables to make locating and working with them easier. These groups are generally structured around Modules in NASA TechTracS

(Awards, Inventory, Technology, etc.) The information is presented in a hierarchical list that shows the groups at the highest level. The tables in a group can be revealed by clicking the disclosure triangle to the left of the group icon (globe). Tables have a folder icon.

Only one group can be "open" at a time, other groups will close automatically. Some tables (such as the Technology table) support different views. These tables will have a disclosure triangle to the left of the table icon and will reveal the views available for that table.

Views have an eye icon. Currently the view specifies which set of pages to use when displaying individual records. The List Screen remains the same for all views of the table.

The Table Group list supports a limited type-ahead feature that will select a group or table based on the letter typed on the keyboard.Double-clicking a group will open (or close) it. Double-clicking a table (or view) will open a Data Window for that table.

A special group called My Tables can be customized (in Preferences) by the user to include any group of tables they desire.

h Clicking the Interface Guide button opens this set of web pages in the users preferred web browser.

i. The Show Tips check box toggles the tips on and off. Tips are the little yellow information boxes that appear when the cursor is over an active object.

j. The current date.

k. The Version display shows the version of the current NASA TechTracS release. Clicking this entry opens the user's preferred web browser to the NASA TechTracS Web Support page for the current release where release notes and timetable information is available.

l. The Help button opens the user's web browser to the NASA TechTracS support site.

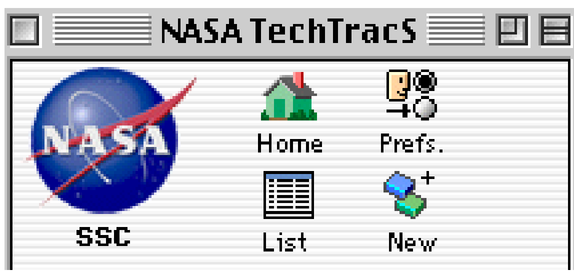
m. When "Show Clock in Control Center" option is selected in Preferences, the NASA TechTracS clock is displayed here.

Control Center - Function Area

Overview

The Control Center Function Area consists of four function buttons, a window bar title and the NASA meatball. The selected button is displayed in a depressed style with the colors inverted. In the sample below, all of the buttons are active which signafes a Table has been selected in the Table Area. Only the Home and Preferences. buttons are active by default whenever the Control Center is displayed.

Function Area



As each Function button is clicked, a data window or special window displays to show the selected function. The four function buttons are:

Home

Displays the selected default data window and record selection configuration or Configures the data window and sets the selection of records.

Home Button in the Function Area of the Control Center

The Home button has two modes: *Set* and *Use*.

To set the Home Setting hold down the option key and click on the Home button. The currently selected Table Group, Table, and View will be stored. If there is a value in the QuickFind entry area, it too will be stored.

To use the Home Setting simply click the Home button. The previously stored settings will be restored and a Data Window for the selected table will be opened. If a QuickFind value had been stored the QuickFind query will be performed to create a selection of records for the table.

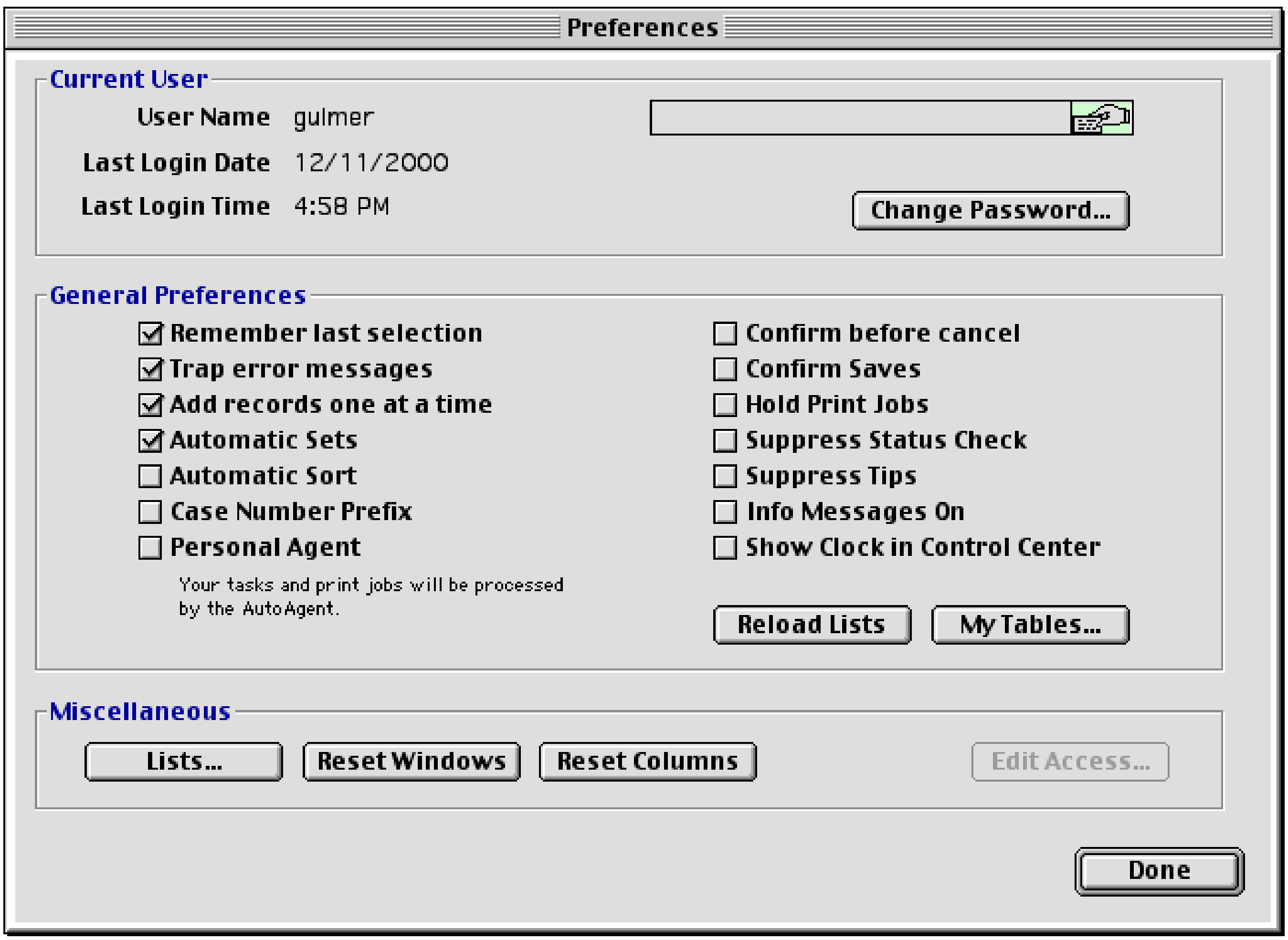
Preferences

Displays the traditional NASA TechTracS Preferences dialog.

Prefs. Button in the Function Area of the Control Center

The Preferences dialog is also available from the Data Control Panel, List or Record windows via the **File** => **Preferences...** menu.

Preferences Dialog



The Preferences dialog contains three areas: Current User, General Preferences, and Miscellaneous:

Current User

Displays the currently-logged-in user account name and the date and time of the last login.The *People Selector* on the right is used to associate a record in the [People] table with the currently-logged-in user. Click the *Change Password* button to enter and save a new password.

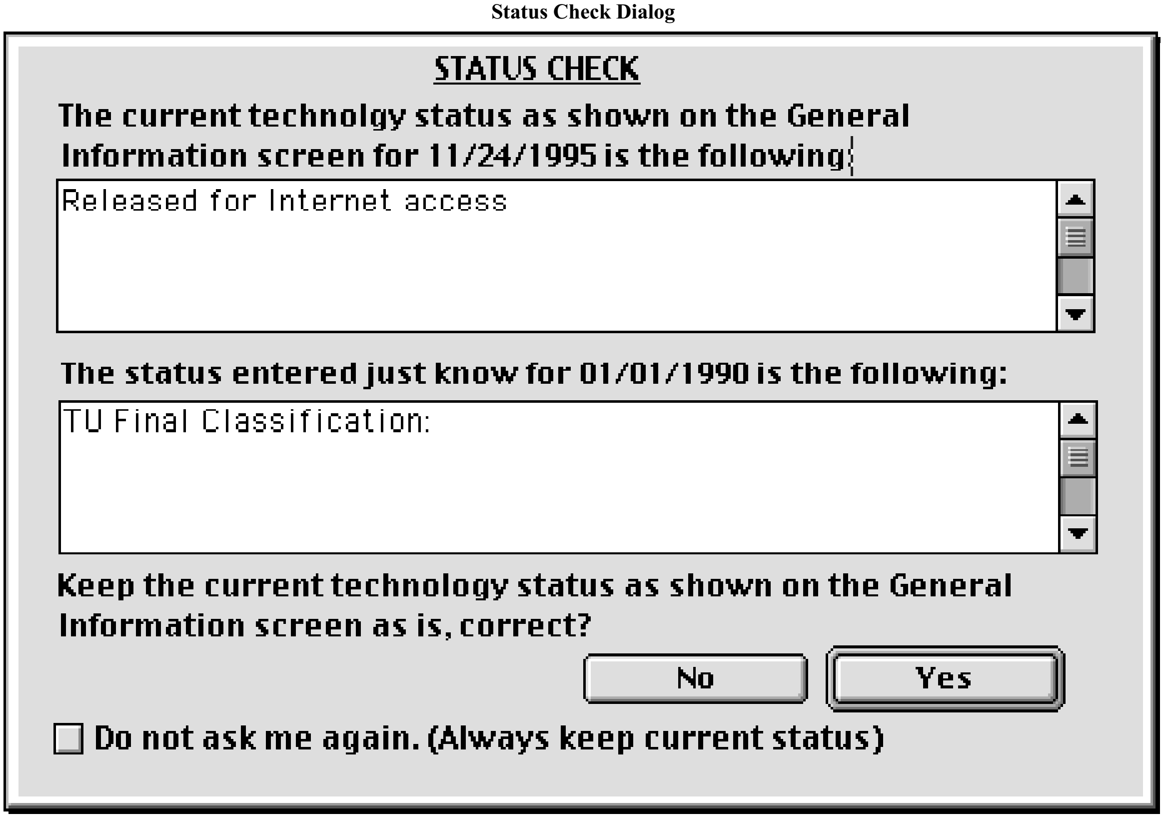
General Preferences

There are 12 check boxes that can be set to customize the behavior of NASA TechTracS to suit the needs or preferences of the user:

Check Box	**Operation When Checked (*recommendation*)**
Remember last selection	Maintains the most recent current selection for each table. Returning, or switching, to the List window of a previously viewed table will restore the displayed list of records. ***(On)***
Trap error messages	Presents error messages in a more user-friendly manner than those used by 4th Dimension. ***(On)***
Add records one at a time	Exits the Add Record function when the user clicks the *Accept* button after adding a record. If not checked, a new blank record is presented to the user after each new record is accepted. ***(On)***
Automatic Sets	Causes NASA TechTracS to automatically generate sets for use by the Set Manager whenever queries are performed or subsets are used. ***(On, unless very low on memory)***
Automatic Sort	For those tables that support it, the records will be automatically ordered whenever the current selection is changed: after queries, subsets, relates etc. ***(User choice)***
Personal Agent	AutoAgent tasks generated by this user will be redirected to the user's personal AutoAgent queue. They will be processed on the local workstation in the Queue Manager process, instead of on the AutoAgent. ***(User choice)***
Confirm before cancel	NASA TechTracS presents a confirmation dialog to the user if the user explicitly cancels from a record after changes have been made but not yet saved. ***(On)***

Confirm Saves	NASA TechTracS presents a confirmation dialog to the user if the user attempts to navigate to another record after changes have been made but not yet saved. The difference between this and the previous check box is that unless the user explicitly cancels the record is to be implicitly accepted. Turning on this check box forces the user to confirm this. ***(On)***
Hold print jobs	AutoAgent (or personal agent) tasks generated by this user will be placed on the "Held" queue. ***(Off)***
Suppress status check	Disables the display of the Status Check dialog (see below) to speed data entry of historical data in the [Technology] table. ***(Off)***
Suppress tips	Disables the pop-up help messages (tips) that display when the user moves the cursor over a suitable object. ***(User choice)***
Info Messages on	Diagnostic tool for technical support purposes. ***(Off)***

Status Check Dialog

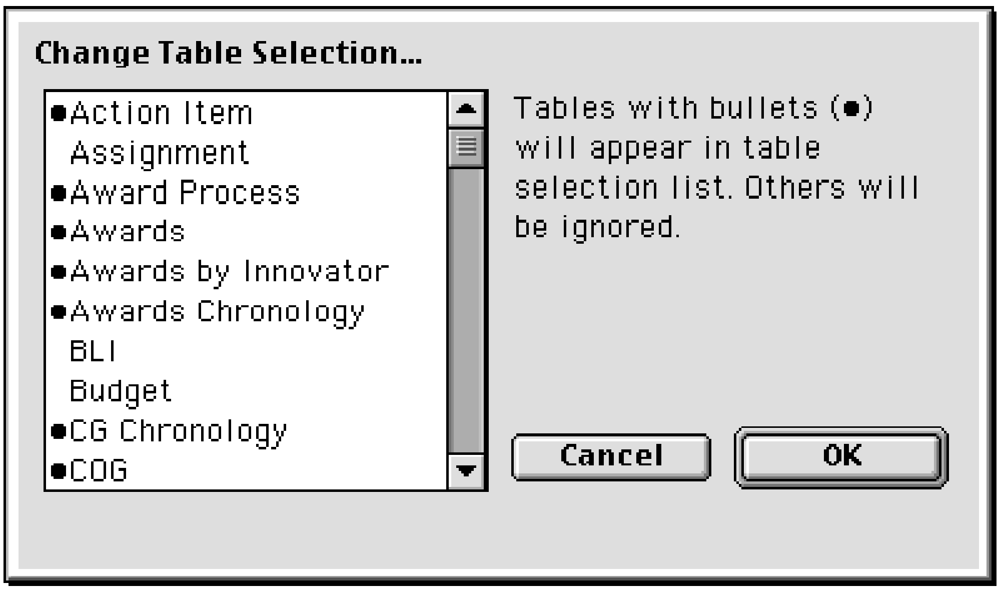


The *Reload Lists* button causes the lists used internally by NASA TechTracS (usually for pop-up menus etc.) to be reloaded. This is only needed when any of the lists have been modified in the [List] table.

NOTE: All lists are reloaded every time the user logs on to the system.

The *My Tables* ... button displays a scrollable list of accessible tables in NASA techTracS.

My Tables Dialog



Clicking a table in the list will toggle the bullet on or off. A table without a bullet is omitted from any of the groups of tables shown in the Data Control Panel.

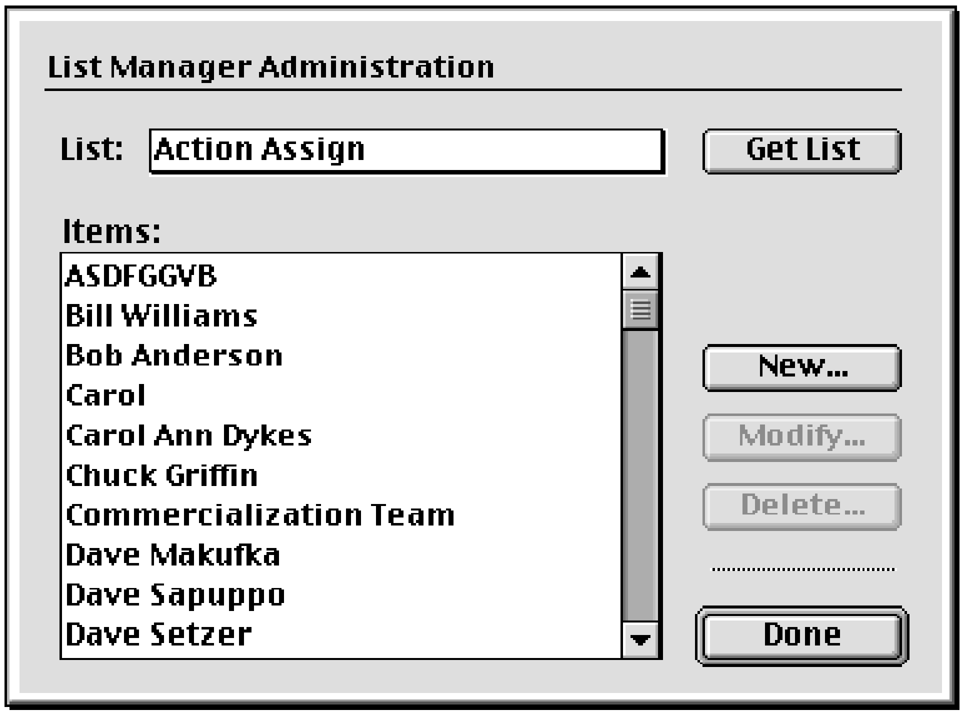
NOTE: One or more tables may be set by the administrator to be completely unavailable to an individual user. In this case they are absent from the My Tables list.

Miscellaneous

Contains four buttons: *Lists, Reset Windows*, *Reset Columns* and *Edit Access*.

The *Lists* button is only available to users in the "DBA" group and provides access to the List Manager dialog:

List Manager Dialog



In this dialog the user may maintain the lists used throughout NASA TechTracS. These lists are predominantly used in the pop-up menus to provide data entry choices. The master lists are normally maintained by the developer and retained in the NASA TechTracS source code. In unusual circumstances, it may be necessary to update them before a new release of NASA TechTracS.

The *List* pop-up menu contains a list of the lists available. Selecting one causes that list's items to be displayed in the *Items* scrollable area. Clicking one of the items allows it to be modified (*Modify...* button) or deleted (*Delete...* button).

The *Reset Windows* button resets the Widows sizes back to the NASA TechTracS default., to fit on a 600 X 800 pixel screen.

The *Reset Columns* button changes the splitter positions back to the NASA TechTracS default.

The *Edit Access* button is only available to the Administrator and provides access to the Users and Groups dialog.

List

Displays the selected table in a List style data window (or List Window) where the user can work with one or more records. This button is dimmed if a table is not selected

List Button in the Function Area of the Control Center

New

Adds a new record to the selected table, displaying an empty record style window where the user may enter data. This button is dimmed if a table is not selected

New Button in the Function Area of the Control Center

Window Title

Displays the name of the current Application, "NASA TechTracS".

NASA Center

Usually you will know to which NASA TechTracS server you are connected, but the Site Prefix (e.g.: SSC) can be useful to those users who regularly connect to multiple TechTracS servers or at those locations that are running multiple NASA TechTracS servers (e.g. LaRC).

NASA Meatball with Center's Site Prefix

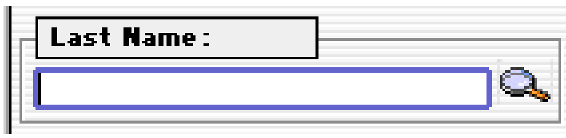
Control Center - Quick Find Panel

Overview

Overview

The Control Center Quick Find Panel provides a simple query on the selected table.

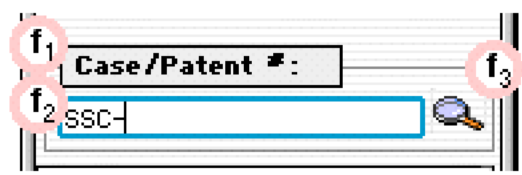
Quick Find Panel in Function Area of the Control Center



The prompt in the Quick Find data entry area varies with the table selected in the table area. Typing a value and clicking the *QuickFind* button  causes the table to be searched for records matching the specified criteria. If more than one record is found, the results are displayed in the table's List window. If one record is found it is displayed in the Record window.

The QuickFind panel consists of three parts: (f1) the QuickFind Prompt, (f2) the QuickFind Entry Area, and (f3) the *QuickFind* button .

Areas of the Quick Find Panel



When a table is selected from the Table Group list (or a view is selected if the table has multiple views) the QuickFind Prompt changes to the name of the field that will be used when the QuickFind query executes. If this prompt is blank (and the QuickFind Entry Area, and the QuickFind button are not visible) it is because the QuickFind function is not available for the selected table.

Enter a value in the QuickFind Entry Area upon which to query the selected table.

Click the QuickFind button or type command-s to execute the QuickFind. The resulting records will be displayed in a Data Window for that table.

See Section 03.06.01 Quick Find for more details.

Control Center - Table Area

Overview
Tables List
Table Group

Overview

The Control Center Table Area consists of two parts that are used to select the table with which the user wishes to work.

Control Center - Table Area with
the Patent View of the [Technology] table selected

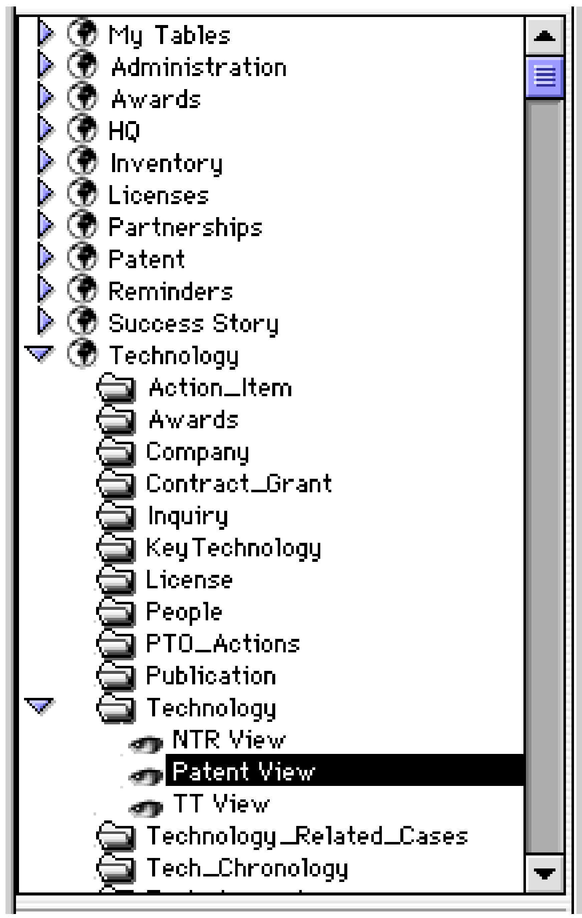


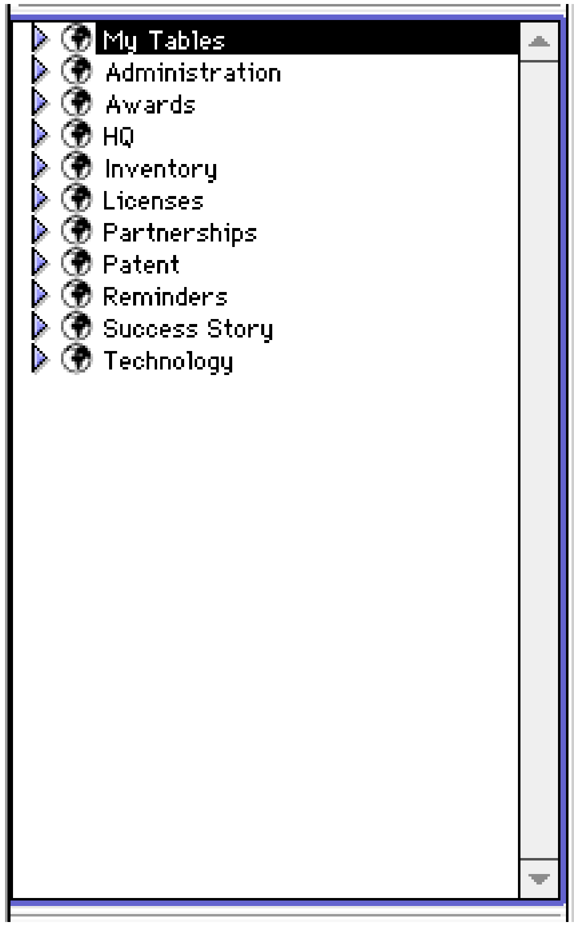
Table Group

NASA TechTracS has over 125 tables in its database and it is often difficult or tedious to find the table needed from such a large list. The concept of Table Groups was created to assist with this problem. In may cases a user only needs access to a small, related group of tables at any one time. Choosing a group in the Tables Area changes the tables listed in the Tables List. A number of groups are reconfigured within NASA TechTracS. Those groups are:

Table Group	Tables in Group
Administration	Action Item
	Constants
	Documents
	Enclosures
	List
	Maintenance Fee
	Process
	Structure
	User
	xHTML
	xKeywords
	xSEQ
	xTickReminders
	xTickRules
	xWAN Post
	xWAN Web
Inventory	Company
	Contract_Grant
	Inventory
	Partnerships
	Success Story
	Technology
Technology	Action Item
	Contract_Grant
	Inquiry
	People
	Publication
	Tech Innovator
	Technology

Table Group	Tables in Group
Awards	Award Process
	Awards
	Awards by Innovator
	Awards Chronology
	Company
	People
	Tech Innovator
	Technology
HQ	Company
	Contract_Grant
	Pat Statistics
	People
	Publication
	Tech Innovator
	Tech Maint Fee
	Technology
	Waiver
Patent	Action Item
	Company
	Contract_Grant
	People
	PTO Actions
	Publication
	Tech Innovator
	Tech Maint Fee
	Technology
	Waiver
Success Story	Company
	People
	Success Story

Table Area displaying Table Groups

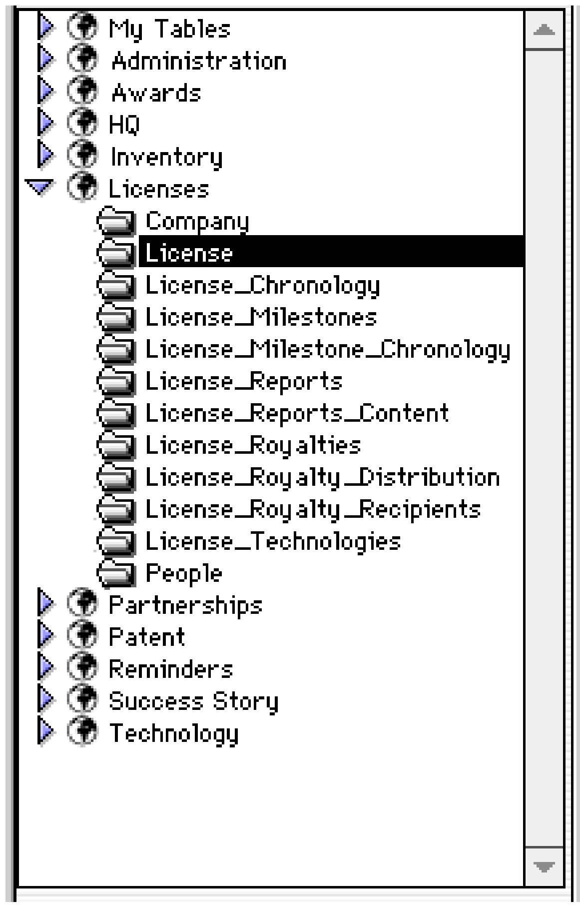


In addition to the preconfigured groups listed above, there is a special group called "My Tables" that can be customized to suit the user’s specific needs. Tables can be included in or excluded from the My Tables group from within the Preferences panel. The My Tables list also has an effect on the tables shown in the preconfigured groups. To remove a table from a preconfigured group, simply remove it from the My Tables list.

Tables List

This is a list of tables in the database from which the user may choose. It is displayed when the user opens the Table Group or doubl clicks a table group. The operation selected in the Function Area is performed on the selected table (if necessary) when the user clicks the *List or New* button.

Table Area displaying Table List

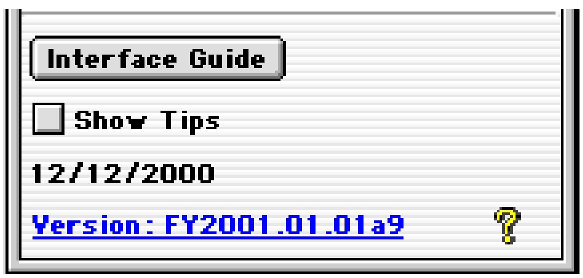


Control Center - Information Panel

Overview

The Information Panel is the last area of the Control Center. It's controls display data to the user including information on using the new interface, toggling of the NASA TechTracS tips, login date, version number, version documentation, and display of the support web stie.

Information Panel



NOTE: When "Show Clock in Control Center" option is selected in Preferences, the NASA TechTracS clock is displayed above the help button.

Interface Guide

The Interface Guide button 

opens the user's default web browser to the NASA TechTracS support site.

Show Tips

The Show Tips checkbox 

toggles the tips on and off. Tips are the little yellow information boxes that appear when the cursor is over an active object.

Current Date

The current date at login

Version

The Version link 

opens the user's preferred web browser to the NASA TechTracS Web Support page for the current release where release notes and timetable information is available.

The Version display shows the version of the current NASA TechTracS release. The current NASA TechTracS version number consists of four parts:

Component	Example	Description
Fiscal Year	FY2000	The fiscal year of the release.
Release Number	02	The release number per fiscal year.
Version Number	00	The version of the release.
Test Version	b1	The alpha or beta version number (Test Only).

The Test Version number is used for development/testing purposes and is removed prior to release.

Help

The Help button  opens the user's default web browser to the NASA TechTracS support site.

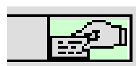
Tutorials

Tutorial #1 - Data Control Panel Preferences (10 minutes).

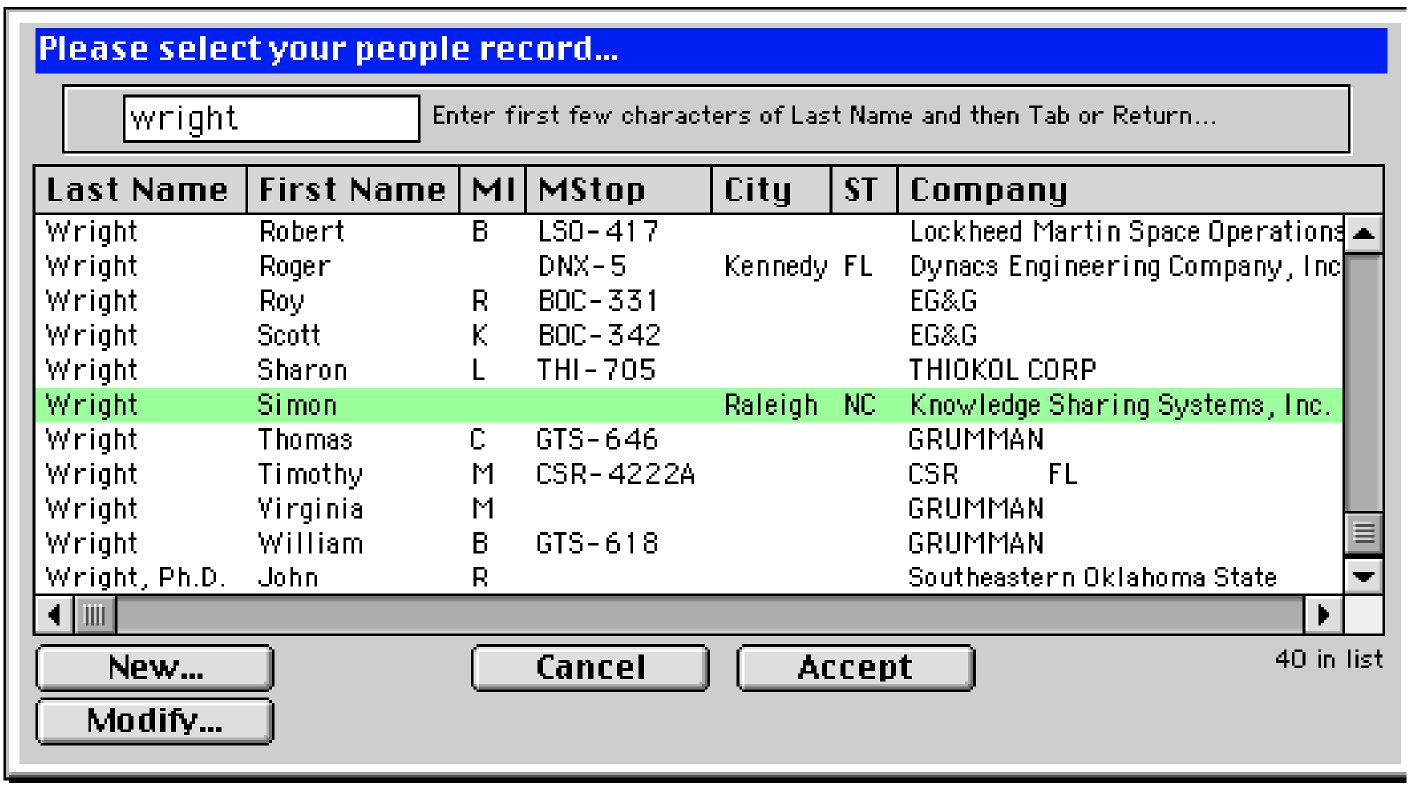
Set the recommended preferences and link to a [People] record:

1. Click on the *Prefs* button to display the Preferences window or from the **File** menu, select **File** => **Preferences**.

2. Set the check boxes as recommended.

3. Click on the *People Selector* icon  to display the People Selector window.

People Selector Window

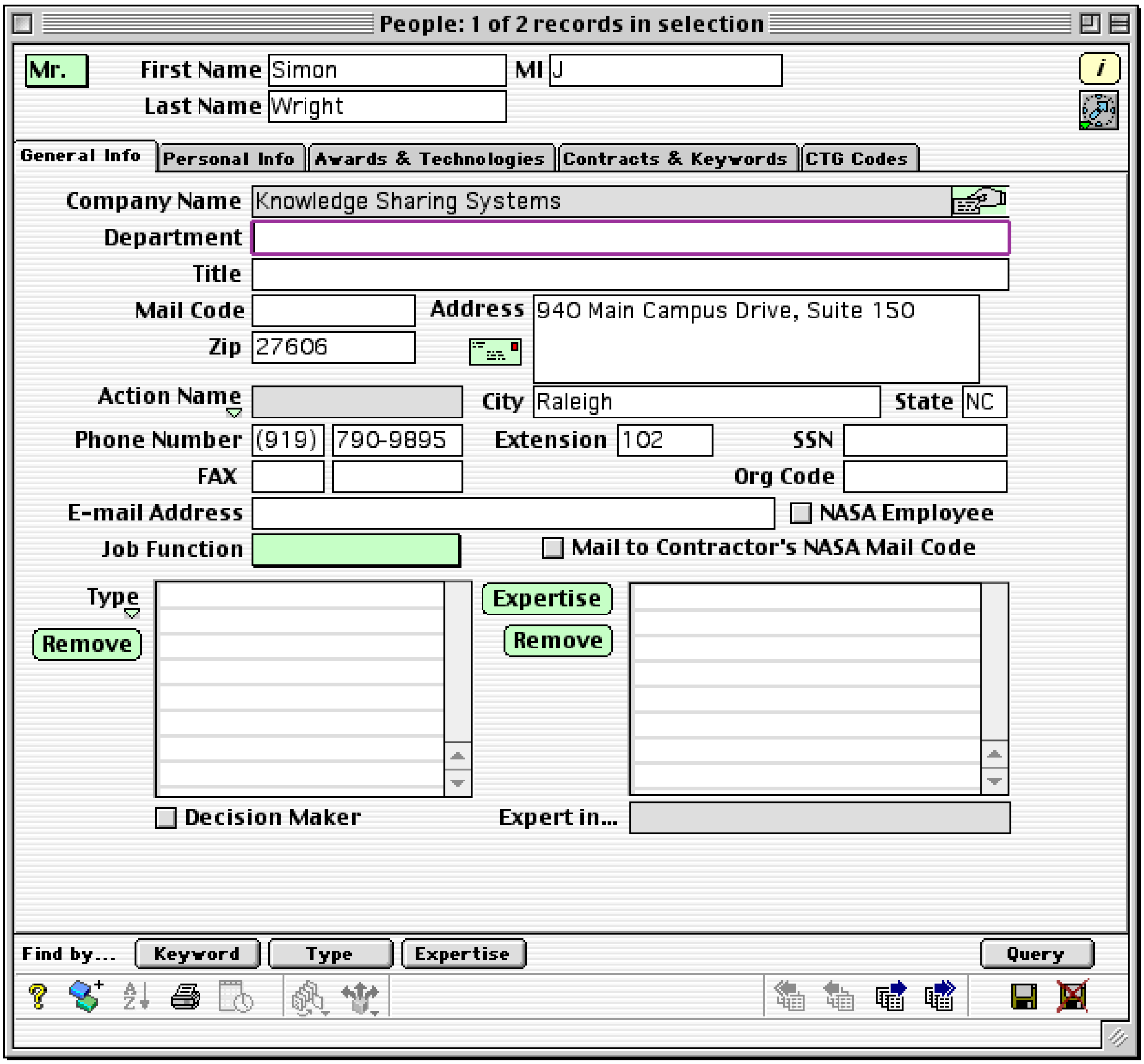


4. Type the first few letters of your last name and then Tab or Return. A list of people matching your entry is displayed.

5. If your record is shown in the list, click on it once and click the *Modify* button. Otherwise click the *New...* button.

6. Enter your information into the [People] record. Use the Company Selector to create an appropriate company or organization record using your last name as part of the company name (e.g. "Smith Industries"). This will be used in later tutorials. Enter your valid email address since this may be used in later tutorials. Accept the new people record.

People Selector New/Modify Record Window



7. Edit the My Tables list to include only these tables: [Action Item], [Awards], [Company], [Contract_Grant], [Documents], [Inventory], [License], [Partnerships], [People], [Success Story], [Tech Innovator], [Technology], [TOPS].

Tutorial #2 - Quick Find to People Listing (4 minutes).

Perform a Quick Find on the [People] table and display the results in the List window:

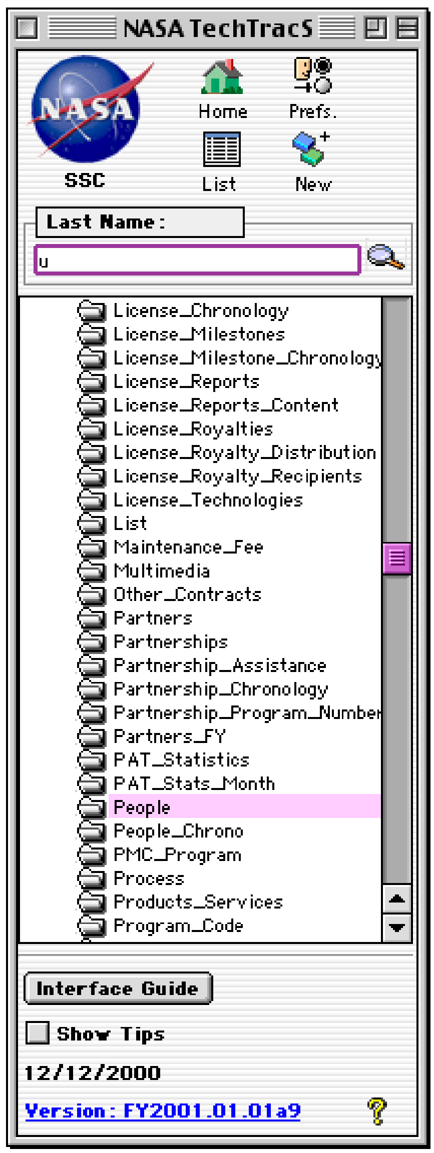
1. Select the "My Tables" Table Group in the Table Area

2. Select People from the scrollable list in the Table area.

4. Enter the first letter of your last name in the Quick Find data entry area.

5. Click the *Quick Find* button.

Tutorial #2



List Window

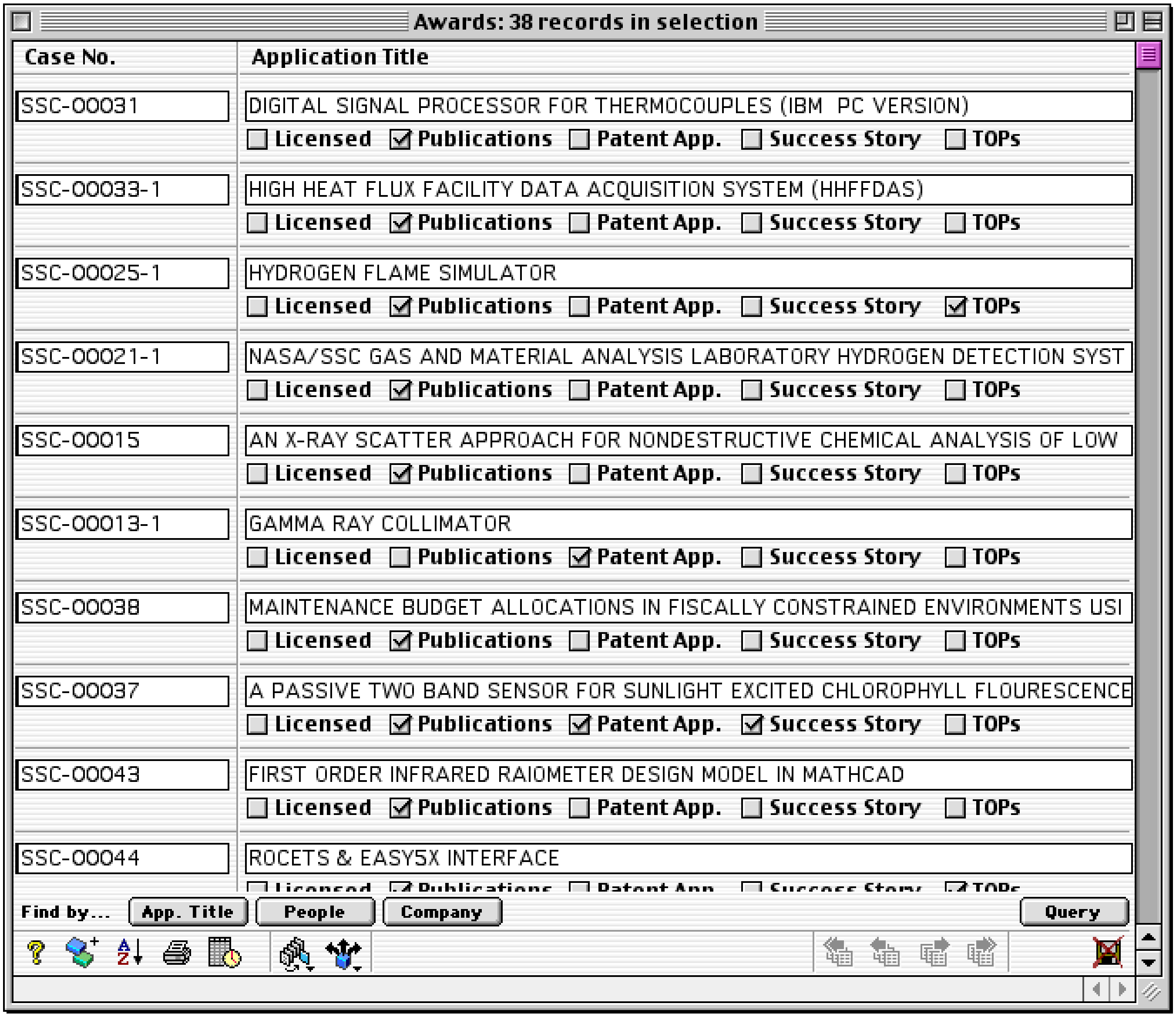
Introduction

Overview

The List Screen (or *List Window*) usually opens alongside the Control Center. The List window is one of the major information display formats. This format allows the user to view important fields from several records in the table simultaneously. Each line represents a single record in the table. The vertical scroll bar brings more records into view. The window title often indicates the name of the table the user is currently dealing with, as well as the number of records in the current selection. There are several operations you can use on the List window, these include: scrolling, selecting, double-clicking and keyword shortcuts.

See the NASA TechTracS Support Website for the most current descriptions of the *List Window*.

List Window for the [Awards] table



The current selection of records are shown in the central part of the window. Selected fields are displayed to provide identification of specific records. A record can be retrieved from the table for editing by double-clicking one of the rows in the *List* Screen or selecting a record and choosing **Modify** form the **Enter** menu. As before, an arbitrary selection of records can be defined by using a combination of single-clicking, shift-clicking and command-clicking in the list of records and choosing **Show Subset** (or **Omit Subset**) from the **Select** menu. Both the upper (header) and lower (footer) portions of the window have important features. Each section is discussed below.

Header

There are several areas that make up the header of the *List Screen*:

Areas of the List Screen Header section

a. The List Screen can be closed by clicking the Close Box or selecting **Close** from the Enter menu (command-.)

b. The window title consists of the table name and the number of records in the current selection. If you do not have read-write access to that table the words [read only] will appear in the window title.

c. Windows can be repositioned and resized using the normal window controls. The size and position if the window is preserved for each table. When that table is reopened the previous size and position of the window is restored.

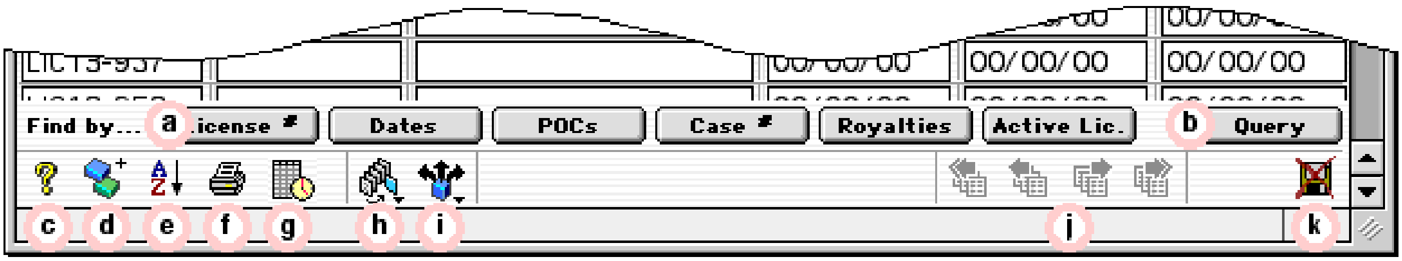
d. Most column headings can be clicked to cause the current selection of records to be ordered by that column. Option-clicking orders the records in reverse order. If a column cannot be sorted a dialog appears indicating such. When a column contains a text field the sorting is performed on the first 40 characters of that field and may be slower to sort than other types of fields.

e. All column widths can be adjusted to the users own taste. Place the cursor over the vertical line between column headings until it changes to the splitter tool then click and drag to increase or decrease the width of the column. Column widths are also preserved for each table and restored when that table is reopened.

Footer

There are several areas that make up the footer of the *List Screen*:

Areas of the List Screen Footer section



a. Some tables have a Find feature (also accessible by selecting **Find** from the **Select** menu (command-F)). When clicked, the buttons in the footer of the *List* Screen (if present) will open the *Find Dialog* at the page indicated by the name of the button from where the user can conduct predefined queries.

b. All *List* Screens sport the **Query** button which invokes the standard 4th Dimension Query Editor. This can also be done by selecting **Query Editor...** from the **Select** menu (command-E).

c. The **Help** button opens the user's web browser to the NASA TechTracS support site.

d. The **New Record** button creates a new empty record for the table. This can also be done by selecting **New...** from the **Enter** menu (command-N).

e. The **Order By** button invokes the standard 4th Dimension Order By Editor . This can also be done by selecting **Order Selection...** from the **Select** menu (command-T).

f. The **Print** button opens the normal NASA TechTracS *Print Dialog*. This can also be done by selecting **Print...** from the **File** menu (command-P).

g. The **Quick Report** button invokes the standard 4th Dimension Quick Report Editor from which the user can create and run custom reports. This can also be done by selecting **Quick Report...** from the **Utilities** menu (command-R).

h. The **Sets Popup** provides access to any previously defined sets and to the Set Manager. Click and hold down the mouse button to reveal the popup menu.

i. The **Relates Popup**  (if active) displays the names of some tables that are related to the current table. Click and hold down the mouse button to reveal the popup menu. Selecting a table from this popup will cause NASA TechTracS to generate a selection of records that are related to the selection of records in the current table. The *Data Window* changes to show the records from the selected table. If the popup is disabled there are no defined relates in NASA TechTracS or there are no records in the current selection.

j. The record navigate buttons are disabled in the ***List Screen***. See the *Record Screen*.

k. The **Cancel**  button closes the ***List Screen*** window.

Invoking the List Window

A user navigates to the List window from the Control Center by using the List button on the Control Center or a Query operation.

On the Control Center, the user selects a table from the *Tables* list box and clicks the *List* button to display the List window

NOTE: If a value is entered in the Quick Find or other search area and only one record is found, then the record will automatically be displayed in the input or record window format.

Any query operation that has multiple records matching the selection criteria displays the records on the List window. See the Query section of this document form the types of Query operations.

Scrolling

List window scrolling is achieved in the typical way. The vertical arrow buttons scroll records up or down one line at a time. The horizontal arrow buttons scroll parts of the layout that may extend beyond the window. Clicking in the gray area either side of the white rectangle will scroll a 'windowfull' of records into view. Click-dragging on the white rectangle (sometimes referred to as the 'elevator') enables the user to place the window's view of the records relative to the scroll-bar. Dragging the elevator to the middle of the scroll bar will display a windowfull of records from the middle of the selection.

Selecting

Individual records may be selected by clicking upon their line in the list screen. Contiguous selections may be created by clicking on one record and shift-clicking on the record at the end of the desired selection. Noncontiguous selections can be created by command-clicking (Ctrl clicking on the PC) the required records.

Double-clicking

Double-clicking a record from the list screen causes 4th Dimension to make that record the Current Record and to display it in the selected record window, typically allowing the user to view and modify the record.

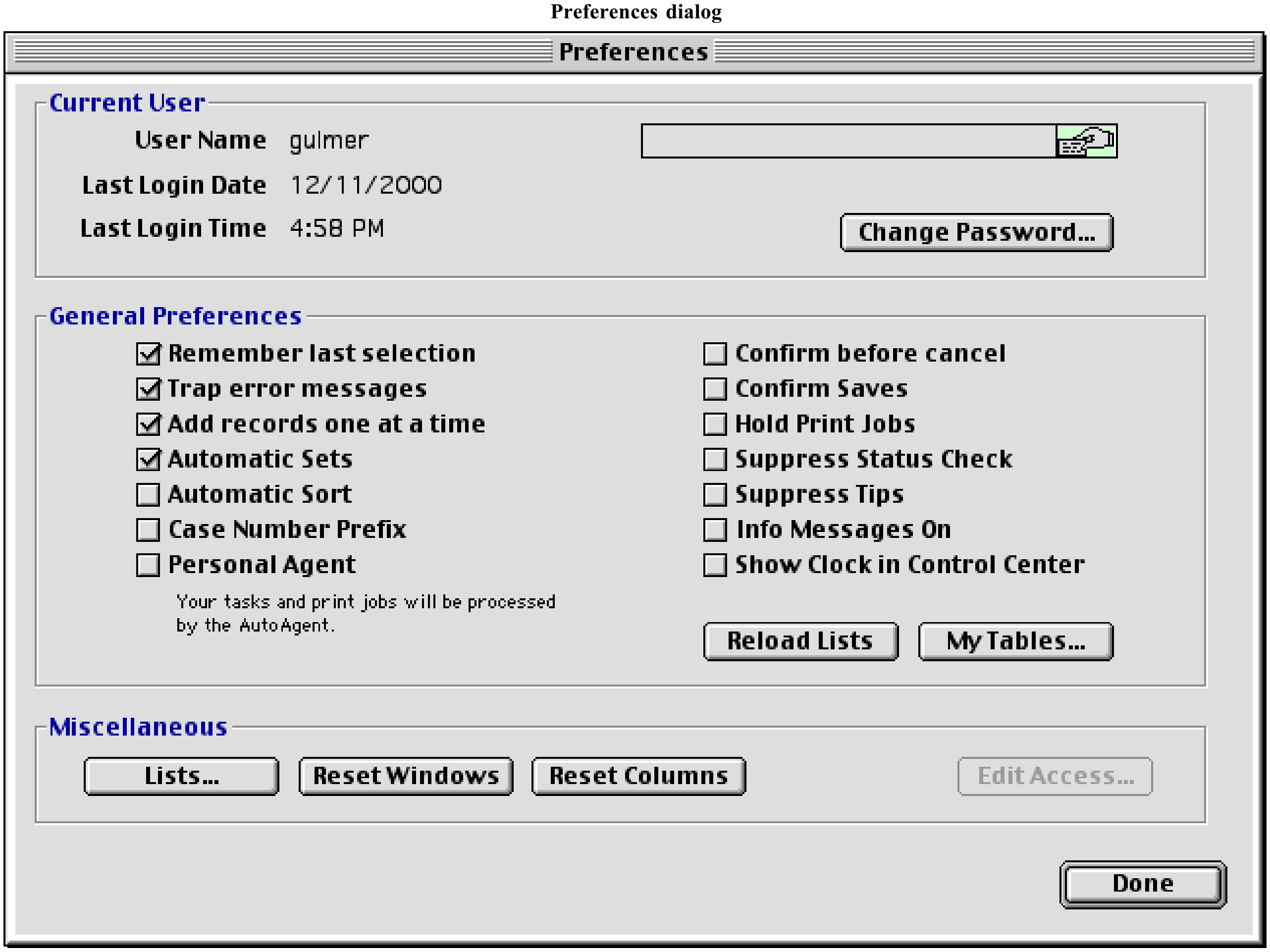
Preferences

Overview
Remember last selection
Add records one at a time
Automatic Sets
Automatic Sort
Suppress Tips

Overview

Several user preferences (select **File** => **Preferences...** from the menu bar) affect the processing of List window functions. Items of note are: Remember last selection, Add records one at a time, Automatic Sets, Automatic Sort and Suppress Tips.

Preferences dialog



Remember last selection

If the *Remember last selection* checkbox is selected in the Preferences dialog, then the same records that are the current selection will be the current selection when you return to the Listing window for a particular table. In other words, if you have selected ten records in the [Technology] table and navigate to the [Awards] table and return to the [Technology] table, your current selection will still be those ten records.

Add records one at a time

If the *Add records one at a time* checkbox is not selected in the Preferences dialog, then the add button will place the user in continuous add mode. This mode continues to prompt the user to enter new records after the current record has been saved. The user must click the *Cancel* button on the record window (see Record Window description) to exit this mode.

Automatic Sets

If the *Automatic Sets* checkbox is selected in the Preferences dialog, then queries are saved as a named set and can be recalled.

Automatic Sort

If the *Automatic Sort* checkbox is selected in the Preferences dialog, then when you display records from a table they will be sorted by the first field before the selection of records are displayed. This option only effects the following tables: [Awards], [Awards by Innovator], [Award Chronology], [Award Process] and [Technology].

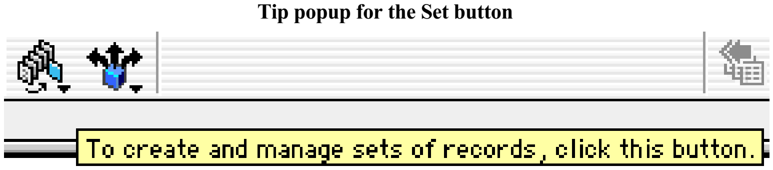
Case Number Prefix

If the *Case Number Prefix* checkbox is selected in the Preferences dialog, then the QuickFind mechanism will automatically add the default case number prefix to the QuickFind query area.

Suppress Tips

If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the popup text help is not displayed.

Tip popup for the Set button



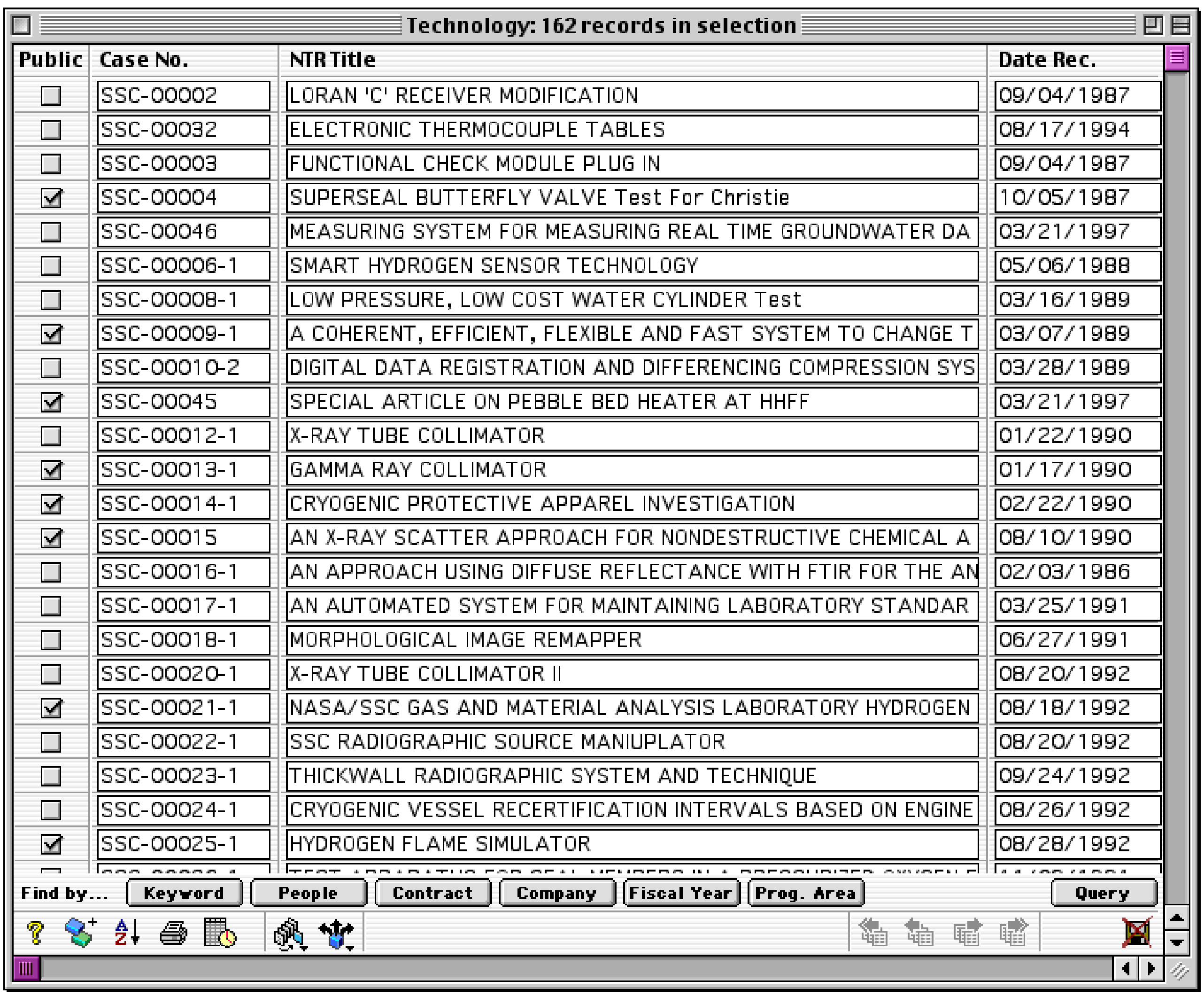
Function Bar

Overview
Function Bar Objects
Other Items
Tutorials

Overview

The function bar is a series of objects that appear across the bottom of the TechTracS List Window. The objects are the Help button, Add button, Order by button, Print button, Report button, Sets popup, Help button, Relate popup and Return button. Each of these List Window objects and related keyboard shortcuts are described below.

List Window from the [Technology] table



Technology: 162 records in selection

Public	Case No.	NTR Title	Date Rec.
☐	SSC-00002	LORAN 'C' RECEIVER MODIFICATION	09/04/1987
☐	SSC-00032	ELECTRONIC THERMOCOUPLE TABLES	08/17/1994
☐	SSC-00003	FUNCTIONAL CHECK MODULE PLUG IN	09/04/1987
☑	SSC-00004	SUPERSEAL BUTTERFLY VALVE Test For Christie	10/05/1987
☐	SSC-00046	MEASURING SYSTEM FOR MEASURING REAL TIME GROUNDWATER DA	03/21/1997
☐	SSC-00006-1	SMART HYDROGEN SENSOR TECHNOLOGY	05/06/1988
☐	SSC-00008-1	LOW PRESSURE, LOW COST WATER CYLINDER Test	03/16/1989
☑	SSC-00009-1	A COHERENT, EFFICIENT, FLEXIBLE AND FAST SYSTEM TO CHANGE T	03/07/1989
☐	SSC-00010-2	DIGITAL DATA REGISTRATION AND DIFFERENCING COMPRESSION SYS	03/28/1989
☑	SSC-00045	SPECIAL ARTICLE ON PEBBLE BED HEATER AT HHFF	03/21/1997
☐	SSC-00012-1	X-RAY TUBE COLLIMATOR	01/22/1990
☑	SSC-00013-1	GAMMA RAY COLLIMATOR	01/17/1990
☑	SSC-00014-1	CRYOGENIC PROTECTIVE APPAREL INVESTIGATION	02/22/1990
☑	SSC-00015	AN X-RAY SCATTER APPROACH FOR NONDESTRUCTIVE CHEMICAL A	08/10/1990
☐	SSC-00016-1	AN APPROACH USING DIFFUSE REFLECTANCE WITH FTIR FOR THE AN	02/03/1986
☐	SSC-00017-1	AN AUTOMATED SYSTEM FOR MAINTAINING LABORATORY STANDAR	03/25/1991
☐	SSC-00018-1	MORPHOLOGICAL IMAGE REMAPPER	06/27/1991
☐	SSC-00020-1	X-RAY TUBE COLLIMATOR II	08/20/1992
☑	SSC-00021-1	NASA/SSC GAS AND MATERIAL ANALYSIS LABORATORY HYDROGEN	08/18/1992
☐	SSC-00022-1	SSC RADIOGRAPHIC SOURCE MANIUPLATOR	08/20/1992
☐	SSC-00023-1	THICKWALL RADIOGRAPHIC SYSTEM AND TECHNIQUE	09/24/1992
☐	SSC-00024-1	CRYOGENIC VESSEL RECERTIFICATION INTERVALS BASED ON ENGINE	08/26/1992
☑	SSC-00025-1	HYDROGEN FLAME SIMULATOR	08/28/1992

Function Bar Objects

HelpButton

The Help button is used to bring up the online help system for TechTracS. When the mouse moves over this button, text help is displayed (if the button is activated). Alt-click or Option-click the button to display the "TechTracS Structure and "Data Dictionary" windows. These windows can also be displayed using the menu bar:
Utilities => TechTracS Structure... and **Utilities => Data Dictionary...**

TIP: There are no quick (key combination) methods to access the Online help or TechTracS Structure or Data Dictionary facilities.

PREF: If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the button's text help is not displayed.

Add Button

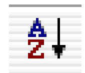
The *Add* button is used to add a record to the current table using the table's record window. When the mouse moves over this button, text help is displayed (if the button is activated). Click the button to activate it or select **Enter => New...** from the menu bar

TIP: To add a record press the "Cmd + N" keys on the Macintosh or "Ctrl + N" keys on Windows

PREF: If the *Add records one at a time* checkbox is not selected in the Preferences dialog, then the add button will place the user in continuous add mode. This mode continues to prompt the user to enter new records after the current record has been saved. The user must click the *Cancel* button on the data screen (see Data screen description) to exit this mode.

If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the button's text help is not displayed.

Order by Button



The *Order by* button is used to sort the current record set via a dialog box. When the mouse moves over this button, text help is displayed (if the button is activated). Click the button to display the "Order by" dialog box or select **Select => Order Selection...** from the menu bar

TIP: To sort the current record set press the "Cmd + T" keys on the Macintosh or the "Ctrl + T" keys on Windows

NOTE: If there are no records in the current selection, an alert dialog is displayed.

PREF: If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the button's text help is not displayed.

Print Button

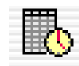
The *Print* button is used to print a record or selection of records in a letter or report (usually selected from a dialog box). When the mouse moves over this button, text help is displayed (if the button is activated). Click the button to display the "Choose Report Layout(s)" dialog box or select **File => Print...** from the menu bar

TIP: To print press the "Cmd + P" keys on the Macintosh or the "Ctrl + P" keys on Windows

NOTE: If there are no letters or reports available for the current selection, an alert dialog is displayed.

PREF: If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the button's text help is not displayed.

Report Button



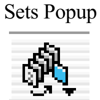
The *Report* button is used to create a report layout. When the mouse moves over this button, text help is displayed (if the button is activated). Click the button to display the "Quick Report Editor" dialog box or select **Utilities => Quick Report...** from the menu bar

TIP: To display the Report Editor press the "Cmd + R" keys on the Macintosh or the "Ctrl + R" keys on Windows

NOTE: If there are no letters or reports available for the current selection, an alert dialog is displayed.

PREF: If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the button's text help is not displayed.

Sets Popup



The *Sets* popup is used to create, modify, and manage record sets. When the mouse moves over this popup, text help is displayed (if the button is activated). Pressing down on the mouse button (on click), displays a list of options (set manager, new set) and moving the mouse highlights each list item. Releasing the mouse button (on click within the list), displays appropriate dialog box. The Set Manager can also be displayed using the menu bar : **Select** => **Set manager...**

NOTE: There are no quick (key combination) methods to access the Set Manager or New Set facilities.

PREF: If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the popup's text help is not displayed.

Relate Popup

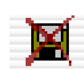
The *Relate* popup is used to relate the current record selection to the selected table. When the mouse moves over this popup, text help is displayed (if the button is activated). Pressing down on the mouse button (on click), displays a list of tables (varies) available to relate to and moving the mouse highlights each list item. Releasing the mouse button (on click within the list), relates the current selection to the records in the related table and makes that table the current table.

TIP: If you hold the Option key while selecting a table from the popup, the table will appear in a new window.

NOTE: There are no quick (key combination) methods to access the Relate facilities.

PREF: If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the popup's text help is not displayed.

Close Window Button



The *Close Window* button returns the user to the Control Center. When the mouse moves over this button, text help is displayed (if the button is activated). Click the button to close the list screen and display the Control Center. The Data Control Panel can also be displayed using the menu bar: **Enter => Close**

TIP: To return to the Control Center press the "Cmd + . " keys on the Macintosh or the "Ctrl + . " keys on Windows

PREF: If the *Suppress Tips* checkbox is selected in the Preferences dialog, then the button's text help is not displayed.

Other Items

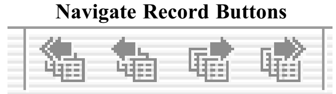
Window Title

The *Window Title* displays the name of the currently selected table and the number of records in the current selection.

TIP: To select and display the listing window of the Next File, press the "Cmd + Down Arrow" keys on the Macintosh or the "Ctrl + Down Arrow" keys on Windows

To select and display the listing window of the Previous File, press the "Cmd + Up Arrow" keys on the Macintosh or the "Ctrl + Up Arrow" keys on Windows

Navigate Record Buttons



The *Navigate Record Buttons* are not active in the List window

Tutorials

Tutorial #1 - Add a new [Company] record (3 Minutes)

1. From the List window of the [Company] table, click on the *Add* button.
2. Enter your last name as the Company name.
3. Enter your address in the Company address section.
4. Accept the record.

Tutorial #2 - Add a new [People] record (3 Minutes)

1. From the List window of the [People] table, click on the *Add* button.
2. Enter your first name, middle initial, and last name.
3. Select your company from the Company selector.
4. Enter your email address.
5. Add the keyword "Training".
6. Accept the record.

Selections

Overview

In this section the menu commands will be covered that deal with obtaining a selection of records and the operations that can be formed on those selections.

Show All

This menu item will show all the records for the currently selected table. To show all the records for the currently selected table, go to the **Select** menu and choose **Select** =>**Show All**. NASA TechTracS will display all the records for the current table. The window title will then change to reflect the number of records that are in the selection.

TIP: One can also use the following keyboard short cut to show all records;
"Cmd + G" keys on the Mac or
"Ctrl + G" keys on Windows

Show Subset

This menu item will allow the creation of a subset of records in the current table. A subset is a selection of records that are set apart from the other records in the table. To create a subset, select the records from the main selection that are to be a part of the subset. These records can be selected in one of two ways. If the selection of records are ordered in a way that they are continuos, then click once on the first record to highlight it and then go to the last record, hold down the shift key and click once on that record and all the records that are between and including the first and last record will be selected. If the selection of records are not in a continuos order, then go to each record and press the Cmd key (for Mac) or the Ctrl key (for Windows) and click on the record to select it.

After the records have been selected, go to the **Select** menu and choose **Select** =>**Show Subset**. NASA TechTracS will then create the subset selection. The window title will then change to reflect the number of records that are in the selection.

TIP: You can also use the following keyboard short cut to create a subset of records;
"Cmd + H" keys on the Mac or
"Ctrl + H" keys on the PC

Omit Subset

This menu item will omit a subset of records from the current selection of records. Once omitted the selection remaining will be the initial selection of records minus the records that were selected to be omitted. To omit a selection of records from the current selection first select the records to be omitted. Select these records by using the same method as described in the Show Subset section of this document.

After the records to be omitted have been selected, go to the **Select** menu and choose **Select** => **Omit Subset**. TechTracS will then create the new selection minus the records that were selected. The window title will then change to reflect the number of records that are in the selection.

Invert Selection

This menu item will display those records that are not in the current selection. For example, if there were 1058 records showing out of 1067. When this menu item is selected, NASA TechTracS will change the selection to show those missing nine records.

To invert the selection, go to the **Select** menu and choose **Select** => **Invert Selection**. NASA TechTracS will then display the selection of missing records that were not displayed previously. The window title will change to reflect the number of records that are in the selection.

Order Selection

Ordering the selection is the same as sorting the selection. The act of sorting will change the order of records in the selection. Sorting on an indexed field is very rapid. Non-indexed sorts are sequential in nature and sort times are proportional to the number of records to be sorted. Records can be sorted on up to 30 different fields or formulas. Each field or formula sorted on is referred to as a sort level.

To order/sort a selection of records for the current table, go to the **Select** menu and choose **Select** => **Order Selection**.... The 4D Order By Editor dialog will appear where the sorting order can specified. Below is a discussion of the 4D Order By Editor and how to use it.

TIP: You can also use the following keyboard short cut to bring up the 4D Order By Editor;
"Cmd + T" keys on the Mac or
"Ctrl + T" keys on the PC

4D Order By Editor Dialog

The order by editor contains the following areas:

Fields list This area displays a hierarchical list of fields in the current table. Indexed fields are shown in boldface. Fields from subtables and related tables can be sorted upon (provided the relation is automatic). To use a field from a related table or subtable, expand a foreign key field by clicking on the plus sign (on Windows) or arrow (on Mac) to display the fields from the related table.

NOTE: Only tables and fields that are visible appear in the Order By Editor.

Sort area This area displays the sort fields or sort formulas and the direction of each sort. The arrows on the right of this area are used to specify an ascending or descending sort.

Add Formula button The *Add Formula* button is used to create a formula as one of the sort criteria. Use a formula when you want to sort on something that is not a field - such as a calculated value or a portion of a field.

Button panel The button panel has buttons for adding or removing fields from the Sort list.

Modify button When the *Modify* button is clicked, it displays the selected sort criterion in the Formula editor. If the selected criterion is a formula, the formula is presented for editing. If the criterion is a field, the field name appears in the editing window of the Formula editor.

Cancel button This button to cancel the sort and return to the previous form.

Order By button Use this button to perform the sort.

<u>Sorting a Selection</u>

This section will detail the steps in creating a sort once the 4D Order By Editor is displayed.

- Double-click the name of the field on which you want to sort.

  OR
- Drag the field name from the Fields list to the Sort area.

  OR
- To sort on a formula, click the *Add Formula* button.

  <u>NOTE:</u> When you open the Order By editor, the Fields list displays the fields from the master table. You can choose fields from related tables or sub-tables by expanding a foreign key field or subtable field. If you clicked on the Add Formula button, 4D will display the Formula editor.

- If necessary click the sort direction arrow in the Sort area to switch between ascending and descending sort order. To sort in the ascending direction, click on the arrow until its pointing up (This is also the default direction). To sort in the descending direction, click on the arrow until its pointing down.

- If necessary, repeat steps 1 and 2 to add secondary sort levels to the list.

- After the sort level and directions are set, click on the *Order By* button to sort the selection.

Formula Editor

Before discussing sorting on a formula, the basics of the 4D Formula editor will be reviewed. The Formula editor provides many shortcuts for writing formulas. One can click field names, operators, and routines to add them to the formula.

The Formula editor contains the following areas:

Editing area This area displays the formula as it is built. The formula is created in this area by either typing the function or selecting operators, fields, and functions from the toolbar or panels at the bottom of the editor. A field can be added to the Editing area by double-clicking or using drag and drop.

Operators toolbar The toolbar contains a row of buttons that can be used to insert operators into a formula.

Tables drop-down list This list controls the fields displayed in the Fields list. One can choose to display fields from:

- Master Table: Fields from the current table are displayed.
- Related tables: Fields from the current table are displayed in a hierarchical list. Expand a foreign key field to display related fields.
- All tables: All tables and fields are displayed in a hierarchical list. Expand any table to display the list of fields in that table.

Fields list This area displays the names of tables and fields or fields in the master table. The information in the Fields list depends on the *Tables drop-down* list setting. Click the plus sign (on Windows) or arrow (on Mac) to expand a foreign key field to show the list of related fields.

NOTE: Only visible fields appear in the Fields lists.

Routines list This area contains a list of drop-down menus or an alphabetical list of commands and user-written methods. Each drop-down menu lists a group of 4D functions and commands. The Routines list also displays the names of project methods and plug-in commands. These methods appear at the end of the list of drop-down menus. The pop-up menu above the Routines list controls whether the commands are grouped by theme or listed alphabetically. Use this menu to control the display in the Routines area.

Buttons area This area contains buttons for saving your formula, loading a saved formula from disk, canceling an editing session, and applying the formula.

A formula is built by clicking operators and commands. Double-click field names or add them to the editing area using drag and drop. When an item is clicked, it automatically appears in the Editing area, where it can be modified with standard cut, copy and paste techniques. One can also type directly into the Editing area. A formula can be only one logical line long. The formula can accept any user written method. The methods can be many lines long.

As the formula is developed, the Formula editor performs basic syntax checking. If it finds an error, it displays the error message above the Editing area. If an error is reported, it must be corrected before being allowed to proceed.

<u>Sorting on a Formula</u>
One can create a formula to sort your selection by doing the following:

- In the Order By editor, click the *Add Formula* button.

  4D will then display the Formula editor. Use the Formula editor to create a formula that returns the values to sort on.

- Click *OK* when the formula is complete.

  4D displays the formula in the Sort area. The formula appears with a sort direction arrow in the Sort area.

<u>Modifying a Sort Order</u>
One can remove or reorder fields or formulas in the Sort area

Removing a field or formula To remove a field or formula, highlight the field or formula in the Sort area and click the *Remove* button (denoted by the red single "<" character) or press the Backspace key (Delete key on Mac). To remove all fields or formats click on the *Remove All* button (denoted by the red double "<<" characters).

Reordering the sort criteria To reorder fields or formulas in the Sort area, drag the field or formula up or down.

Relate

Overview

Overview

The following two sections will discuss the two methods available that can be used to relate one table to another. The first method is the *Relate pop-up* and the second method is the Relate Selection menu item. At the end of each section there is a tutorial that will deminstrate each of the two operations.

Relate Popup

Overview
Related Tables Listing
Using the Related Popup
Tutorial

Overview

This section will discuss how to relate a selection of records from one table to another using the *Relate Popup* that is located on the List Window. In this section there is also find a listing of which tables can related to other tables.

Related Tables Listing

Listed below are the tables within NASA TechTracS that can related by using the *Relate Popup*. The first column is the table name, the second column contains the names of relates in the popup list and the third column is the actual table name within the NASA TechTracS structure, if different.

Table Name	Related Name	Actual Table Name
[Awards]	Award Process	
	Awards Chronology	
	Awards by Innovator	
	Technology	
	Tech Innovator	
	People	
	TOPS	
	Success Stories	[Success Story]
	License	
	Publications	[Publication]
[Awards Chronology]	Awards	
[CG Chronology]	Contract Grant	[Contract_Grant]
[Company]	Chronology	[Company Chrono]
	Contract_Grant	
	People	
	Success Stories	[Success Story]
[Contract Reports]	Contract/Grants	[Contract_Grant]

Table Name	Related Name	Actual Table Name
[Contract_Grant]	CG Chronology	
	Companies	[Company]
	Company People	[People]
	Contract Reports	
	Inventory	
	Keywords	[KeyContract]
	Partnerships	
	Success Stories	[Success Story]
	Technologies	[Technology]
[Inventory]	Contract_Grant	
[KeyCompany]	Companies	[Company]
[KeyContract]	Contract/Grants	[Contract_Grant]
[KeyPeople]	People	
[KeySuccess]	Success Stories	
[KeyTechnology]	Technologies	[Technology]
[License]	License Report	[License Reports]
	License Report Content	[License Reports Content]
	License Royalties	
	License Royalty Recipients	
	License Royalty Distribution	
	License Milestone	[License Milestones]
	License Chronology	
	License Milestone Chronology	
	License Technology	[License Technologies]
	License Royalty Recip. People	[People]
	Technology	
[License Chronology]	License	
[License Milestones]	License	
	License Milestone Chronology	
[License Milestone Chronology]	License Milestone	
[License Reports]	License Reports Content	
	License	
[License Report Content]	License Reports	
	License	
[License Royalties]	License	
[License Royalty Distribution]	People	
	License	

Table Name	Related Name	Actual Table Name
[License Royalty Recipients]	License	
[License Technologies]	License	
[Partners]	Partners FY	
	Partnerships	
[Partners FY]	Partners	
[Partnership Assistance]	Partnerships	
[Partnership Chronology]	Partnerships	
[Partnerships UPN_FPN]	Partnerships	
	Partnerships UPN_FPN FY	
[Partnerships]	Contract Grant	[Contract_Grant]
	KeyPartnership	
	Partnerships Assist	[Partnership Assistance]
	Partners	
	Partnership Chronology	
	Partnership NTRs	
	Partnership Org Codes	
	Partnership SIC	
	Partnership UPN_FPN	
	Success Stories	[Success Story]
	Technology	
[People]	Awards	
	Company	
	License	
	License Royalty Distribution	
	People Chrono	
	Tech Innovator	
	Technology	
[People Chrono]	People	
[PTO Actions]	Technology	
[Success Story]	Companies	[Company]
	Contract_Grant	
	KeySuccess	
	Partnerships	
	Success Story Assist	
	Success Story Assoc Docs	
	Success Story Chronology	
	Success Story Technologies	
	Success Story UPNs	
	Technology	

Table Name	Related Name	Actual Table Name
[Success Story Assist]	Success Stories	[Success Story]
[Success Story Assoc Docs]	Success Stories	[Success Story]
[Tech Chronology]	Technology	
[Tech Innovator]	People	
	Technology	
	Awards by Innovator	
[Tech Org Codes]	Technology	
[Technology]	Awards	
	Chronology	[Tech Chronology]
	Contracts	[Contract_Grant]
	Innovators	[Tech_Innovators]
	Keywords	[KeyTechnology]
	Licenses	[License]
	Maintenance Fees	[Tech Maint Fee]
	Org Codes	[Tech Org Codes]
	Other Contracts	
	Partnerships	
	People	
	People Companies	[Company]
	PTO Actions	
	Publications	[Publication]
	Related Cases	[Technology Related Cases]
	Success Stories	[Success Story]
	Success Stories Technologies	
	Tech Chronology	
	TOPS	
[TOPS]	Technology	

<u>Using the Relate Popup</u>

The Relate popup is located at the bottom of each list window within NASA TechTracS. The *Relate popup* will allow the selection of a table from the list that is related to the current table and it will display the records that are related to the selection of records in the current table.

Relate Pop-up Menu (Company Table)

Before the *Relate popup* is used there must be a selection of records in the current table. Go to the *Relate popup* and click on it. A list of tables that are related to the current table will appear. Move the mouse pointer through the list until you have found the the table whose related records are required and click on it. NASA TechTracS will then search the related table for any records related to the selection in the current table. Once NASA TechTracS has completed it's search, the display will change to the related table and it will display the selection of records that are related to the previous table's selection.

<u>TIP</u>: If you would like to view the related selection of records in a different window without changing the current selection of records or table, then before you click on the *Relate Popup* hold down the Alt key (on Windows) or Option key (on Mac) and then click on the popup. Keep the key pressed until you have chosen the related table.

<u>NOTE</u>: If a related table is chosen from the *Relate Popup* and that table is not in your list of tables as defined by your preference settings, then when you choose that table you will receive a message informing you that the table is not in your table list.

Tutorial

Tutorial #1 - Relate Popup (5 minutes)
In this tutorial we will relate a company to a person in the [People] table.

1. Complete Tutorial # 1 from Section 02.06.

2. Hold down the Alt Key on the PC or Option Key on the Mac and click on the *Relate Popup*.

3. In the *Relate Popup* list, select "Company".

4. Once you have selected "Company", the related records will be displayed in a new window. You will be able to tell that the related selection is in a different window due to the bullet character or asterisk at the beginning and ending of the window title.

5. Once you have the related selection in the second window, leave the second window open because it will be used in the tutorial for the relate selection chapter.

Relate Selection

Overview
Using Relate Selection
Tutorial

Overview

The Relate Selection menu item is different from the *Relate Popup*. The *Relate Pop* up will relate a selection of records from the current table to a related table through a set of relations drawn between the tables by the database developer. The Relate Selection menu item will allow the user to create a relation between two tables that has not been defined by the database developer.

Using Relate Selection

Before Relate Selection can be used, there must be a selection of records in the current table. Go to the **Select** menu and choose **Select** => **Relate Selection**.... A dialog will then appear with a list of fields from the current table that you can select to relate the selection from the current table to another field from another table. You can select the relation by double-clicking on the line. After you have double-clicked on the relation, the ">>" symbol will appear to the left to indicate that the relation has been selected.

After you have selected the relation to create, you have two options that you can set. The first option is that you can have NASA TechTracS create a master set in the related table that contains the selection of records that are related to the selection of records in the current table.

NOTE: This option is the default setting.

The second option that you can choose to select is to have NASA TechTracS take you to the related table to view the related records after the relation has been established.

NOTE: You will not be able to choose this option until after you have selected at least one relation.

After the relation has been selected and options have been chosen, click *Relate* for NASA TechTracS perform the relation. If you do not want to execute the relation, click *Cancel*.

Tutorial

Tutorial #2 - Relate Selection (5 minutes)
In this tutorial we will use the selection of [Company] records that are contained in the second window to perform the Relate Selection operation to relate back to the [People] table.

1. Click on the second window which contains the companies that were found in the tutorial for the Relate Popup.

2. Once this window is in the foreground, go to the **Select** menu and choose **Select** => **Relate Selection**....

3. In the Relate Selection dialog window, confirm that the following items have been selected and checked:

   - The relation from ***Company Code*** to [People]Company Code field should have the ">>" on the left side to indicate that it has been selected.
   - Uncheck the *Create master set in each related table* check box.
   - Check the *Switch to highlighted related table* check box.

4. After you have confirmed the settings in step 3, then click *Relate*.

5. You should now be in the [People] table with the a selection of records who's people record are related to the companies from the previous selection.

6. Click *Return* to close out the second window.

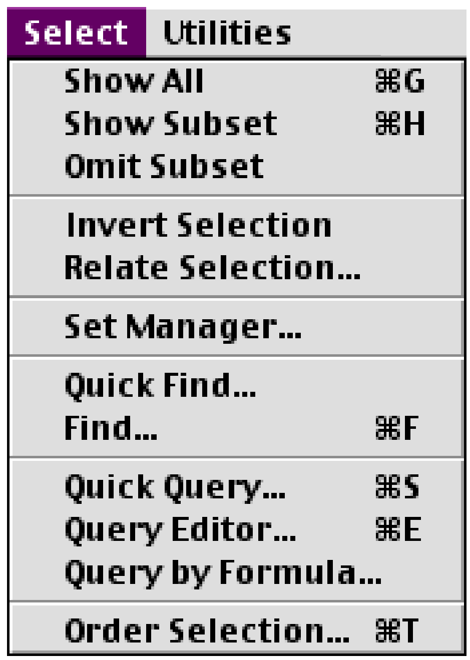
Querying

Overview

Overview

NASA TechTracS provides several powerful methods for searching and querying a database. From the List window, the queries are: Quick Find, Find, Quick Query, Query Editor and Query by Formula. These queries are available from the Menu Bar or the Function Bar. Each of theses queries will be displayed in the following sections.

Querying methods from the Select Menu Bar item

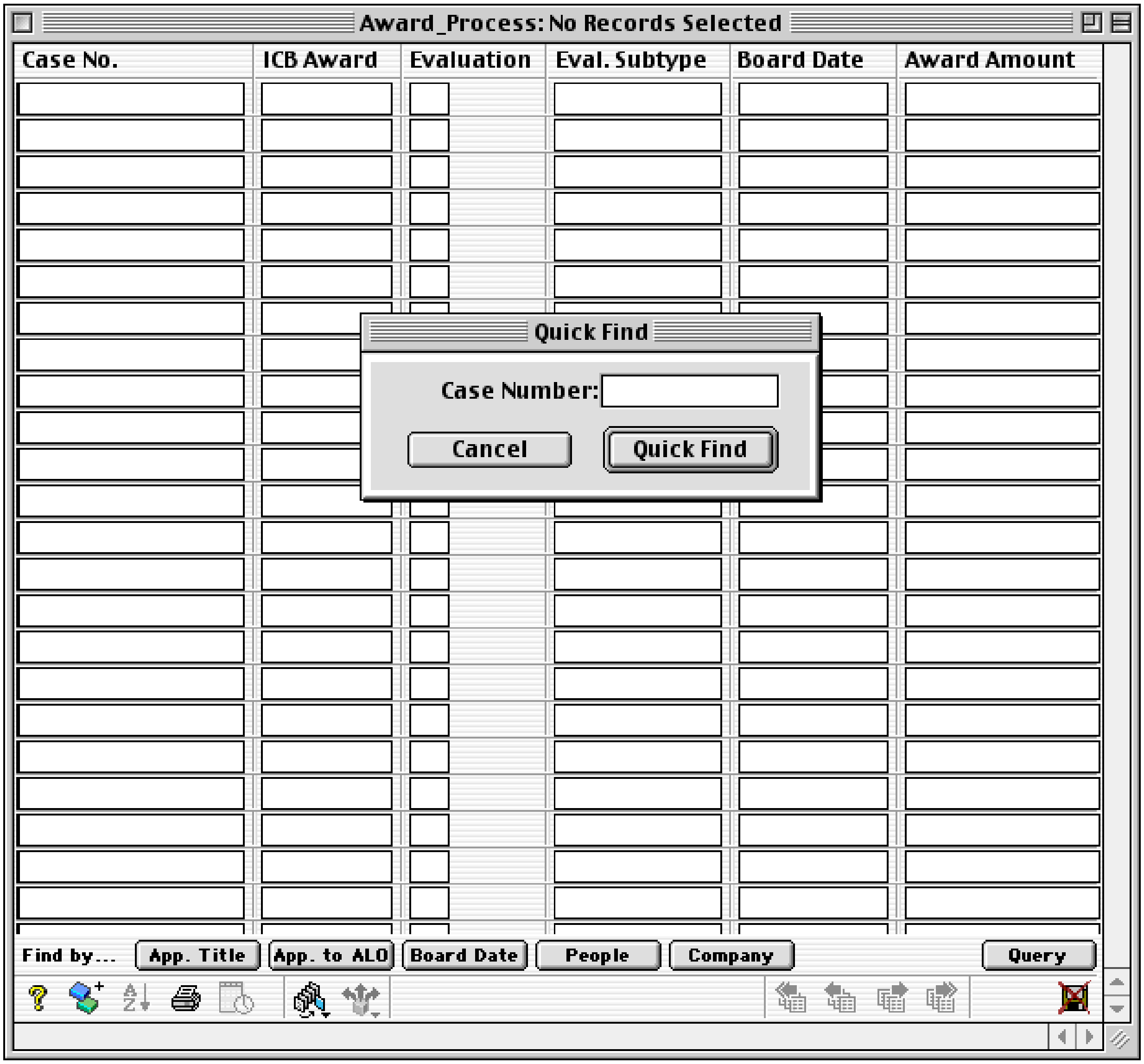


Quick Find

Overview

The Quick Find function of the List Window allows the current table to be searched for the field indicated. The Quick Find dialog appears after "Quick Find" is selected from the Query popup. The dialog allows the user to enter a single value for a given field in the selected table. If a single record is found, the Record window is displayed. Otherwise the List window shows all records found matching the search criteria.

List Screen with Quick Find dialog

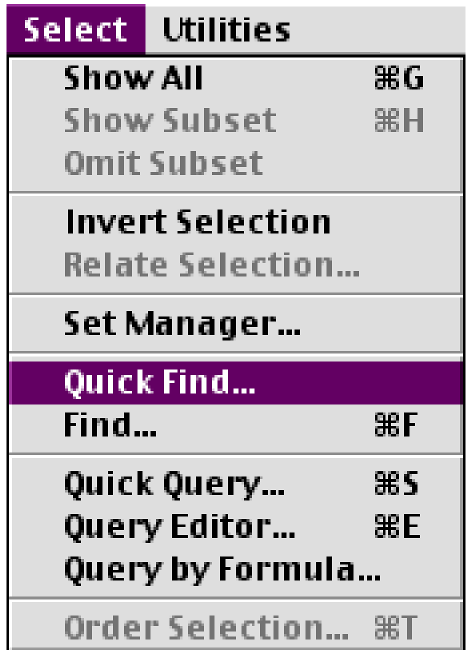


NOTE: The Quick Find prompt varies in many tables

Quick Find Process

Typically, the user will select Quick Find from the Query popup and a field prompt is displayed in the Quick Find dialog box. This field prompt indicates the type of Quick Find search to be conducted on the current table.

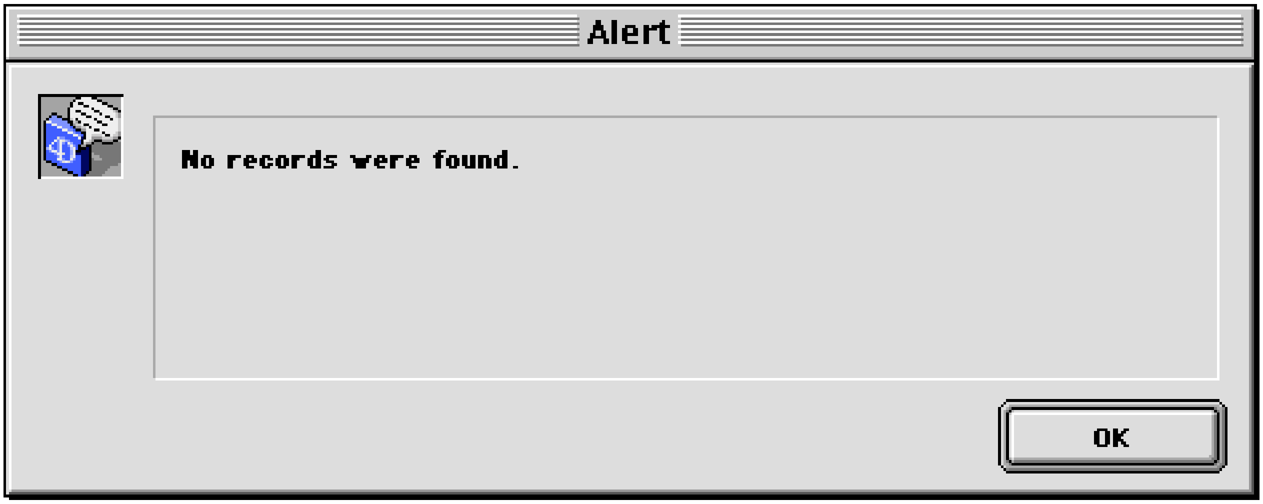
Quick Find from the Select menu



The user then enters a search value for the field indicated by the prompt and executes the search. The search can be executed by pressing the Tab key after entering the search value or by pressing the Return key or clicking the *Quick Find* button. If there are records matching the search criteria, then a List Window is displayed with the matching records. If there are no records matching the search criteria then an alert dialog is displayed. When there is exactly one record matching the search criteria, then the result record is displayed in the List Window.

TIP: The Wildcard search character ("@") is automatically appended to the end of the search value so the user does not need to provide it.

No records were found Alert dialog

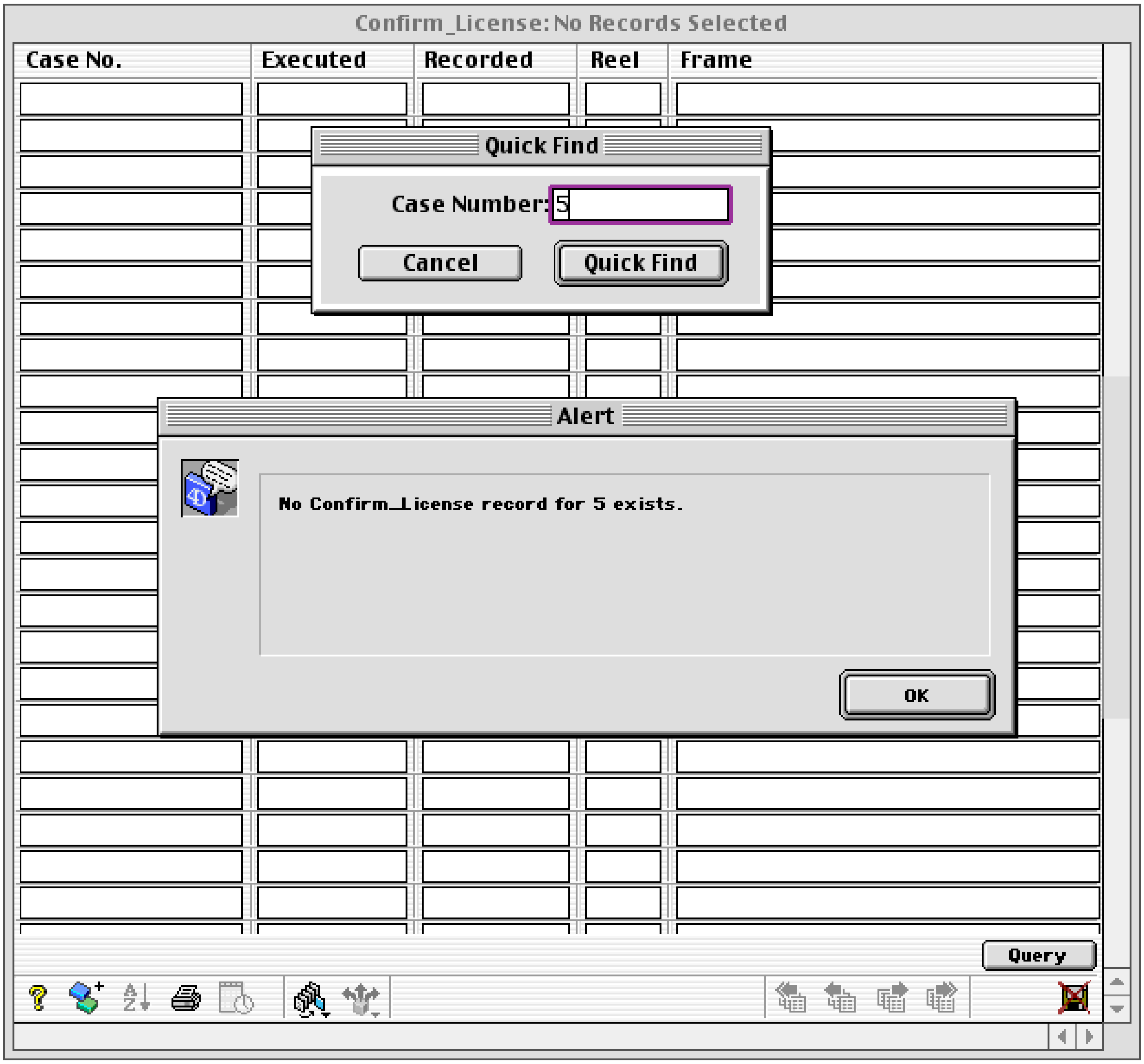


Most tables have an indexed Quick Find field prompt so the query is fast. Longer queries display the Query in Progress information window with a progress bar.

The most common Quick Find field prompts are "Case Number:" and "Contract/Grant:". Some searches using these fields query the table for records related to the Quick Find value.

In many cases when no records are found, a "No records exists" alert dialog is displayed. This type of dialog lists the table you are searching and the related value you used for the query. It indicates that there were no records in the current table that are related to the Quick Find field.

No table record for value exists dialog



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Quick Find Field Reference

Below is a reference to the fields used by NASA TechTracS to perform a quick find when you are in the associated table. The reference is broken out into three columns. The first column is the table name. This is the table that you are currently in when you perform the quick find. The second column is the field used to perform the quick find. The third column contains any related fields that are used after the search is performed to obtain the results for the quick find.

Table Name	Query Field	Related Field
[Action Item]	[Action Item]Sequence	
[Assignment]	[Assignment]Case Number	
[Awards]	[Technology]Case Number	
[Awards Chronology]	[Technology]Case Number	
[Awards by Innovator]	[Technology]Case Number	
[Award Process]	[Technology]Case Number	
[BLI]	[BLI]BLI	
[Budget]	[Budget]Title	
[CG Chronology]	[CG Chronology]Contract Number	
[COG]	[COG]COG	
[Company]	[Company]Name	
[Company Chrono]	[Company]Name	[Company Chrono]Company Code
[Confirm_License]	[Confirm_License]Case Number	
[Congress]	[Congress]State	
[Congressional Districts]	[Congressional Districts]Zipcode	
[Contract_Grant]	[Contract_Grant]Contract Number	
[Contract Reports]	[Contract Reports]Contract Number	
[Documents]	[Documents]Code	
[FY Budget Cost]	[FY Budget Cost]7 Digit UPN	
[Inquiry]	[Inquiry]Case Number	
[Inventory]	[Inventory]Contract Number	
[KeyCompany]	[KeyCompany]Word	
[KeyContract]	[KeyContract]Word	
[KeyPartnership]	[KeyPartnership]Word	
[KeyPeople]	[KeyPeople]Word	
[KeySuccess]	[KeySuccess]Word	
[KeyTechnology]	[KeyTechnology]Word	
[KeyTOPS]	[KeyTOPS]Word	
[Lead Chronology]	[NASA Leads]ID	[Lead Chronology]NASA Lead ID
[LeRC Eval]	[LeRC Eval]Case Number	
[License]	[NASA License]License ID	
[License Chronology]	[License Chronology]License App	
[License Milestones]	[License]License App	[License Milestones]License ID
[License Milestones Chronology]	[License]License App	[License Milestones]License ID
[License Technologies]	[License Technologies]Case No	
[License Reports]	[License]License App	[License Reports]License ID
[License Reports Content]	[License]License App	[License Reports]License ID [License Reports Content]License Report ID
[License Royalties]	[License Royalties]License App	
[License Royalty Distribution]	[License Royalty Distribution]Recipient Type	
[License Royalty Recipients]	[License Royalty Recipients]People Code	
[List]	[List]Name	

Table Name	Query Field	Related Field
[Maintenance Fee]	[Maintenance Fee]Code	
[NASA Leads]	[NASA Leads]Lead Number	
[NASA Tech Leads]	[NASA Tech Leads]Case Number	
[Other Contracts]	[Other Contracts]Case Number	
[Outside Patent Preparation]	[Outside Patent Preparation]Case Number	
[Partnership Assistance]	[Partnership Assistance]Assistance	
[Partners]	[Partnerships]Partnership Number	[Partners]Partnership ID
[Partners FY]	[Partnerships]Partnership Number	[Partners]Partnership ID [Partners FY]Partners ID
[Partnership Chronology]	[Partnerships]Partnership Number	[Partnership Chronology]Partnership ID
[Partnership NTIS]	[Partnerships]Partnership Number	[Partnership NTIS]Partnership ID
[Partnership NTRs]	[Partnerships]Partnership Number	[Partnership NTRs]Partnership ID
[Partnership Org Codes]	[Partnerships]Partnership Number	[Partnership Org Codes]Partnership ID
[Partnership SIC]	[Partnerships]Partnership Number	[Partnership SIC]Partnership ID
[Partnership UPN_FPN]	[Partnership UPN_FPN]Partnership ID	
[Partnership UPN_FPN FY]	[Partnerships]Partnership Number	[Partnership UPN_FPN]Partnership ID [Partnership UPN_FPN FY] Partnership UPN_FPN ID
[Partnerships]	[Partnerships]Partnership Number	
[PAT Statistics]	[PAT Statistics]Year [PAT Statistics]Site	
[People]	[People]Last Name	
[People Chrono]	[People]Last Name	[People Chrono]People Code
[Products_Services]	[Products_Services]Description	
[Program Code]	[Program Code]UPN	
[Program Office]	[Program Office]Description	
[Publication]	[Publication]Case Number	
[PTO Actions]	[PTO Actions]Case Number	
[SBIR_STTR Funding Request]	[SBIR_STTR Funding Request]Contract Number	
[SBIR_STTR Technical Report]	[SBIR_STTR Technical Report]Contract Number	
[Structure]	[Structure]FileNumber	
[Subcontracts]	[Subcontracts]Contract Number	
[Success Story]	[Success Story]Title	
[Success Story Assist]	[Success Story Assist]Assistance	
[Success Story Assoc Docs]	[Success Story Assoc Docs]Title	
[Success Story Chronology]	[Success Story]Title	[Success Story Chronology]Success Story ID
[Success Story Technologies]	[Success Story]Title	[Success Story Technologies]Success Story ID
[Success Story UPNs]	[Success Story]Title	[Success Story UPNs]Success Story ID
[Tech Additional Documentation]	[Tech Additional Documentation]Case Number	
[Tech Chronology]	[Tech Chronology]Case Number	
[Tech Innovator]	[Tech Innovator]Case Number	
[Tech Maint Fee]	[Tech Maint Fee]Case Number	
[Tech Org Codes]	[Tech Org Codes]Technology ID	
[Tech UPN]	[Tech UPN]Case Number	
[Technology]	[Technology]Case Number or [Technology]Patent Number	
[Technology Related Cases]	[Technology]Case Number	[Technology Related Cases]Technology ID
[TOPS]	[TOPS]TOP Number	
[TOPS Category]	[TOPS Category]Category	
[TOPS Related Technologies]	[Technology]Case Number	[TOPS Related Technologies]Technology ID
[Waiver]	[Waiver]Waiver Number	
[xDisciplines]	[xDisciplines]Description	
[User]	[User]UserName	

Tutorials

Tutorial #1 - Quick Find for [People] using the Control Center. (1 minute)

1. Type the first 3 letters of your last name in the Quick Find area on the Control Center.

2. Click the *Quick Find* button, .

3. If more than one record is found, NASA TechTracS will direct you to the List Window. If only 1 record is found, NASA TechTracS will direct you to the Record Window.

Tutorial #2 - Quick Find from the Record Window (1 minute)

1. Double-click on one of the [People] records.

   NOTE: If only one record was found in Tutorial #1, you do not have to perform this step.

2. Choose **Select => Quick Find** menu**.**

3. Type the first 4 letters of your last name in the Quick Find dialog.

   TIP: You can use any of the query tools for the record window.

4. Click the *Cancel* button.

Find

Overview

Find is used to search the current/selected table using a custom dialog. The following tables have a custom find dialog:

[Action Item]	[Award Process]	[Awards]
[Awards by Innovator]	[Awards Chronology]	[Company]
[Contract_Grant]	[Inventory]	[Partnerships]
[Partnership UPN_FPN]	[People]	[Success Story]
[Tech Innovator]	[Tech Maint Fee]	[Technology]

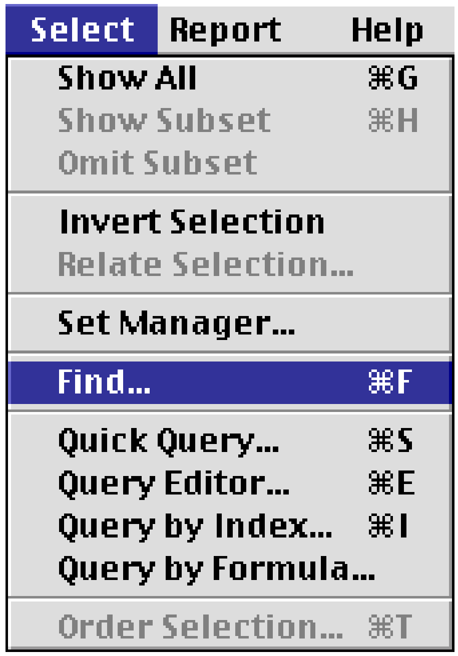
Each of these tables has a unique dialog to query it's records using a selected set of criteria.

Invoking Find

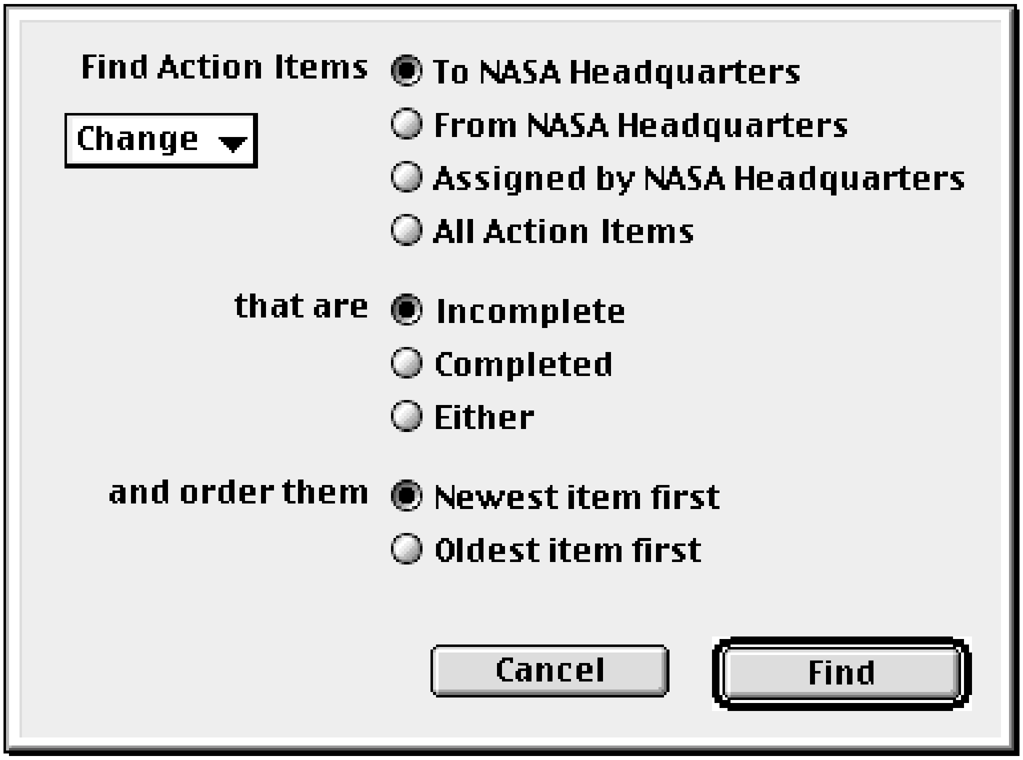
Find can be invoked from the **Select** Menu. From the menu bar, choose **Select** => **Find...** to display the Select Search Method dialog. Click "Find" from the list and then the *Find* dialog is displayed. After selecting a search criteria and entering your query choices, click the *Find* button to execute the search.

TIP: You can invoke the Find dialog from any screen by pressing "Cmd + F" on the Macintosh or "Ctrl + F" on the PC

Find... in the Select menu



Find dialog for the [Action Item] table



NOTE: You can select the set of search criteria from the *Change* pulldown. Often the pulldown is denoted by a green box and the current set of search criteria is Keyword.

NOTE: Click the appropriate radio button beside items in the Find dialog to complete the contents of your search.

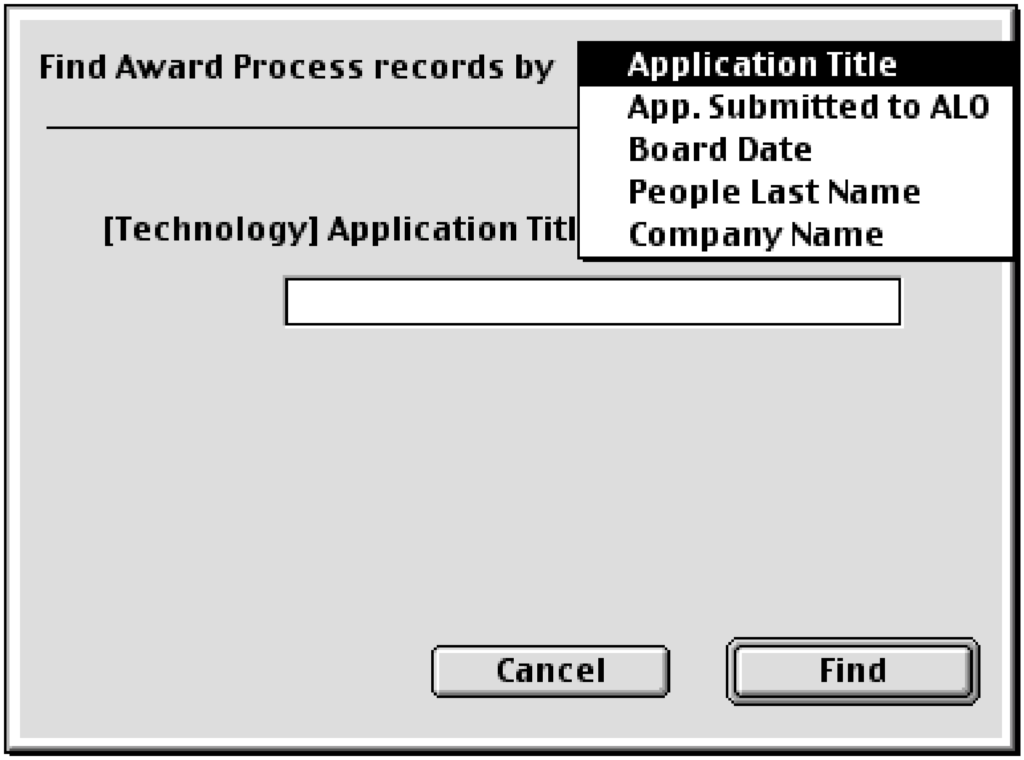
Search Criteria pulldown for the [Action Item] table

NOTE: After entering the query, you can press the Return key to execute the query. This is the same as clicking the *Find* button. You can select the set of search criteria from the Change pulldown. Often the pulldown is denoted by a green box and the current set of search criteria is Keyword.

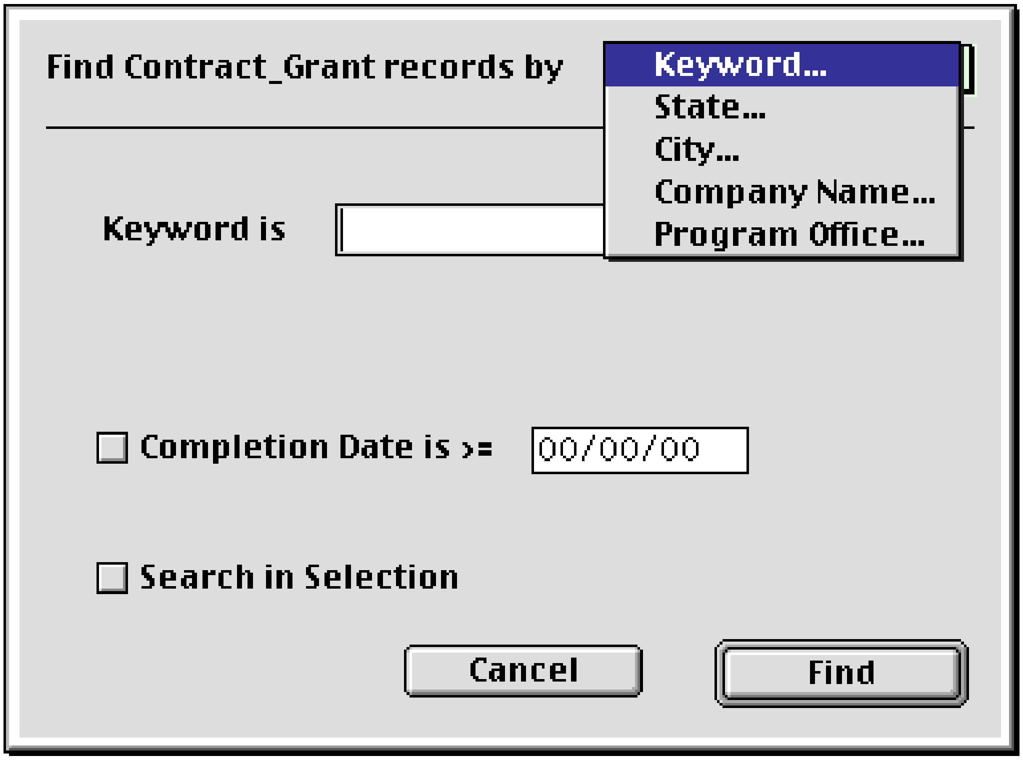
Find Dialogs

Below are a few examples of Find Dialogs:

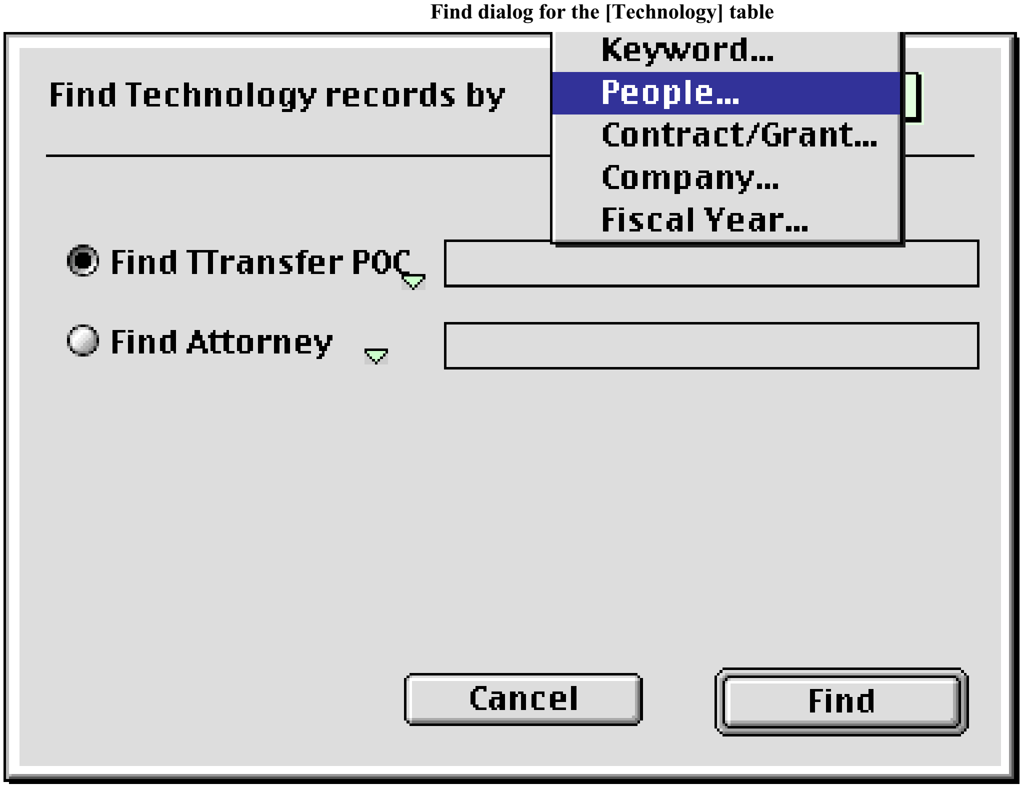
Find dialog for the [Award Process] table



Find dialog for the [Contract_Grant] table



Find dialog for the [Technology] table



Tutorials

Tutorial #1 - Find people who have a keyword of "Training".

1. From the Control Center, click once on the People table

2. Click on the *Query* button.

3. Click on the *OK* button.

4. Choose Find....

5. Type in the keyword "Training".

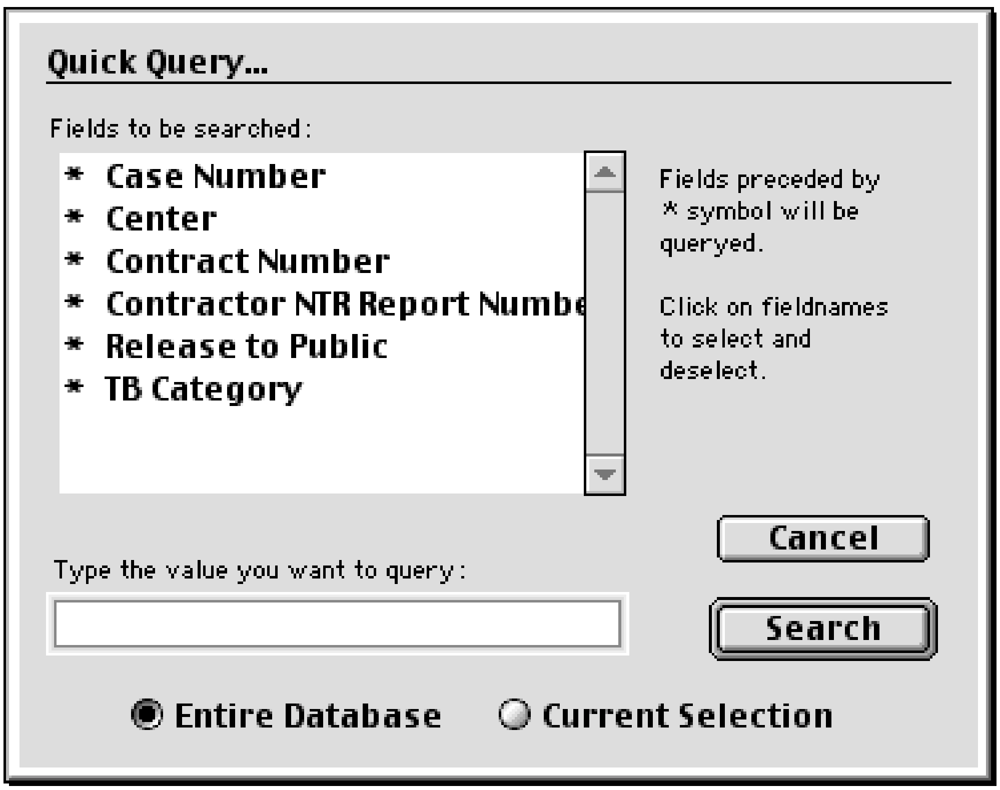
6. Click the *Find* button.

Quick Query

Overview

Quick Query displays a dialog which allows the user to search any, or all, of the indexed alpha fields in the current table for a single value. Quick Query can search either the entire table or just the current selection.

Quick Query dialog for the [Technology] table



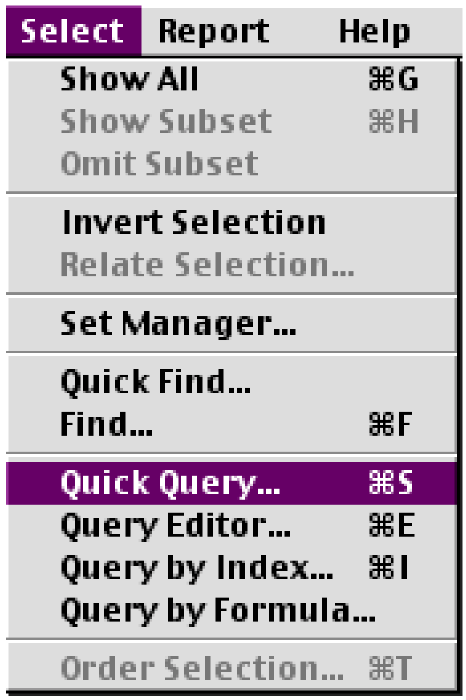
Invoking Quick Query

There are two ways that the Query Editor can be invoked for the List window:

- Pressing "Cmd +S" on the Macintosh or "Ctrl + S" on the PC

- Selecting the “Quick Query...” item in the “Select” menu.

Quick Query from Select menu



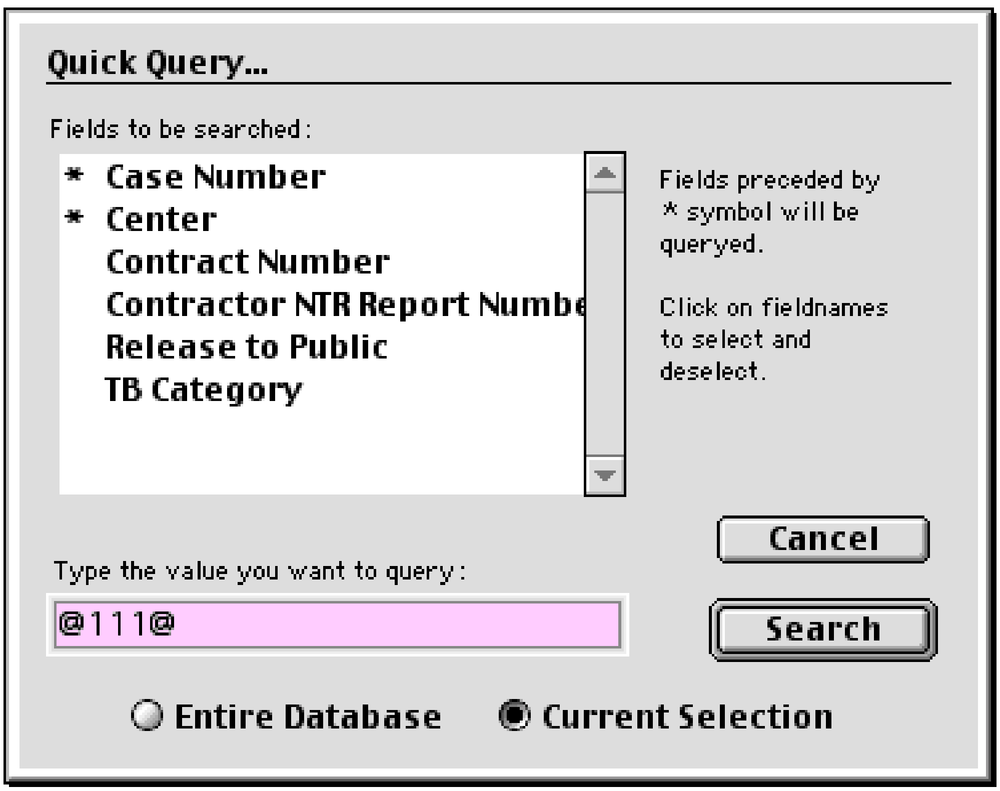
Using Quick Query

The Quick Query dialog allows you to click on the fieldnames to include or exclude them from the search, choose to search the entire database or just the current selection. After you have made your selections, enter the value you want to query and click the *Search* button.

For example, to do a Quick Query search in the current selection of [Technology] table records by Case Number and Center:

1. Enter the Quick Query dialog
2. Deselect the fields you do NOT want to search by single clicking on them
3. Enter the value used to search the selected fields
4. Click the Current Selection radio button to search just the current selection
5. Click the Search button

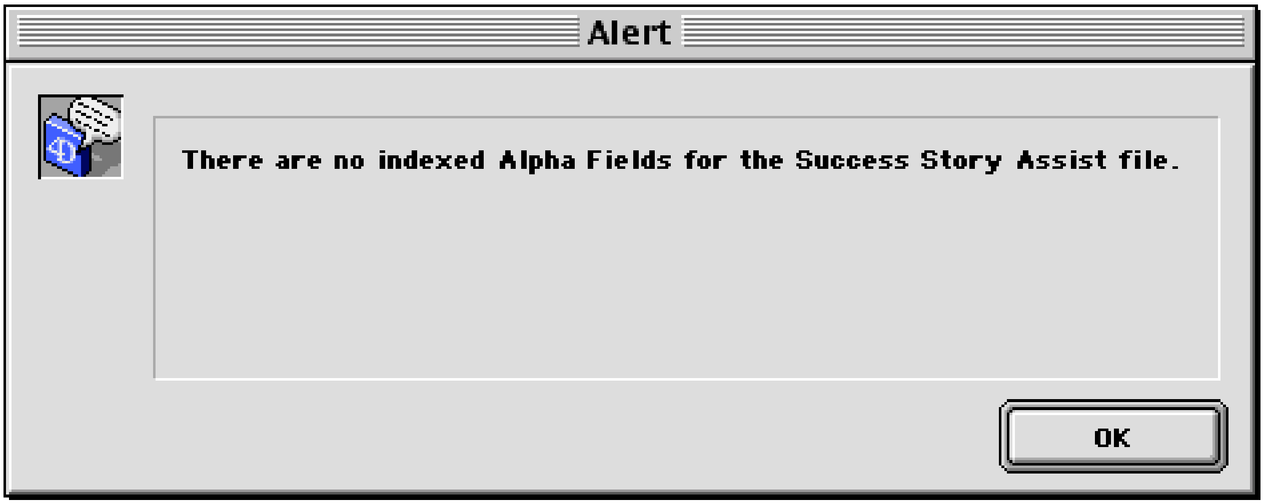
Example [Technology] table Quick Query



NOTE: Quick Query searches the current table for the search value plus the wildcard character "@". So in the example it was not necessary to enter the trailing "@" in the value field.

If there were are no indexed Alpha Fields for the current table, then the Quick Query dialog displays and alert stating that there are no indexed Alpha Fields for the current table.

No indexed fields Alert dialog



Tutorial

Tutorial #1 - Find people that begin with the first letter of your last name (2 Minutes)

1. Using the Quick Query from [People] table, deselect all fields except [People]Last Name field.

2. Type in the first letter of your last name.

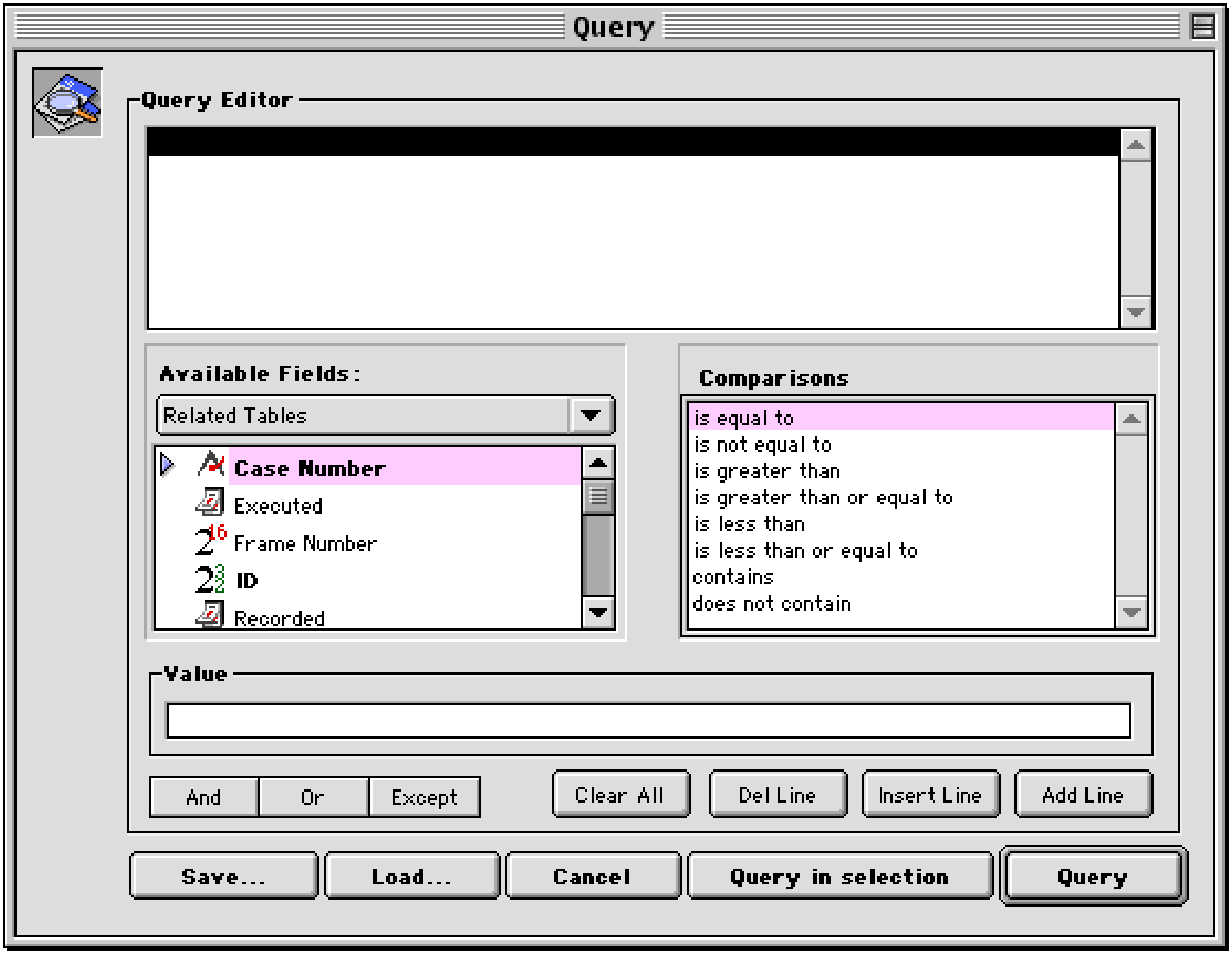
3. Click the *Search* button.

Query Editor

Overview

The Query Editor offers the ability to search for records that match various criteria or instance, it is possible to look up and retrieve records on all people that have the same area code or query all people that have the same job function. Of all the searching methods available in NASA TechTracS the Query Editor is the most powerful.

Query Editor Window

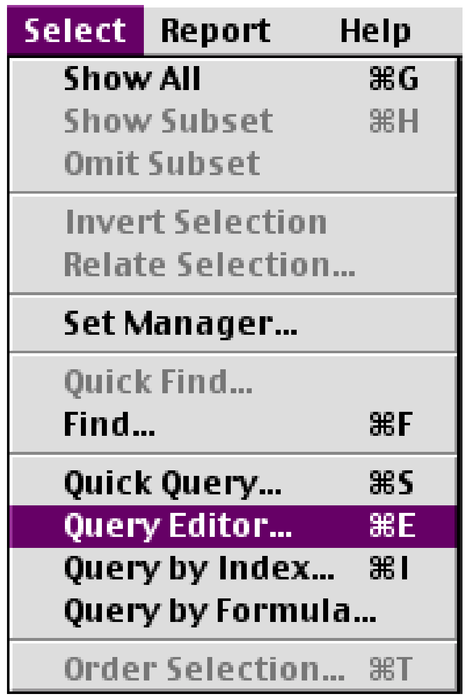


Invoking the Query Editor

There are three ways that the Query Editor can be invoked:

1. From the **Query Editor** item in the **Select** menu, or by pressing "Cmd + E" on the Macintosh or "Ctrl + E" on the PC

Quick Query from Select menu

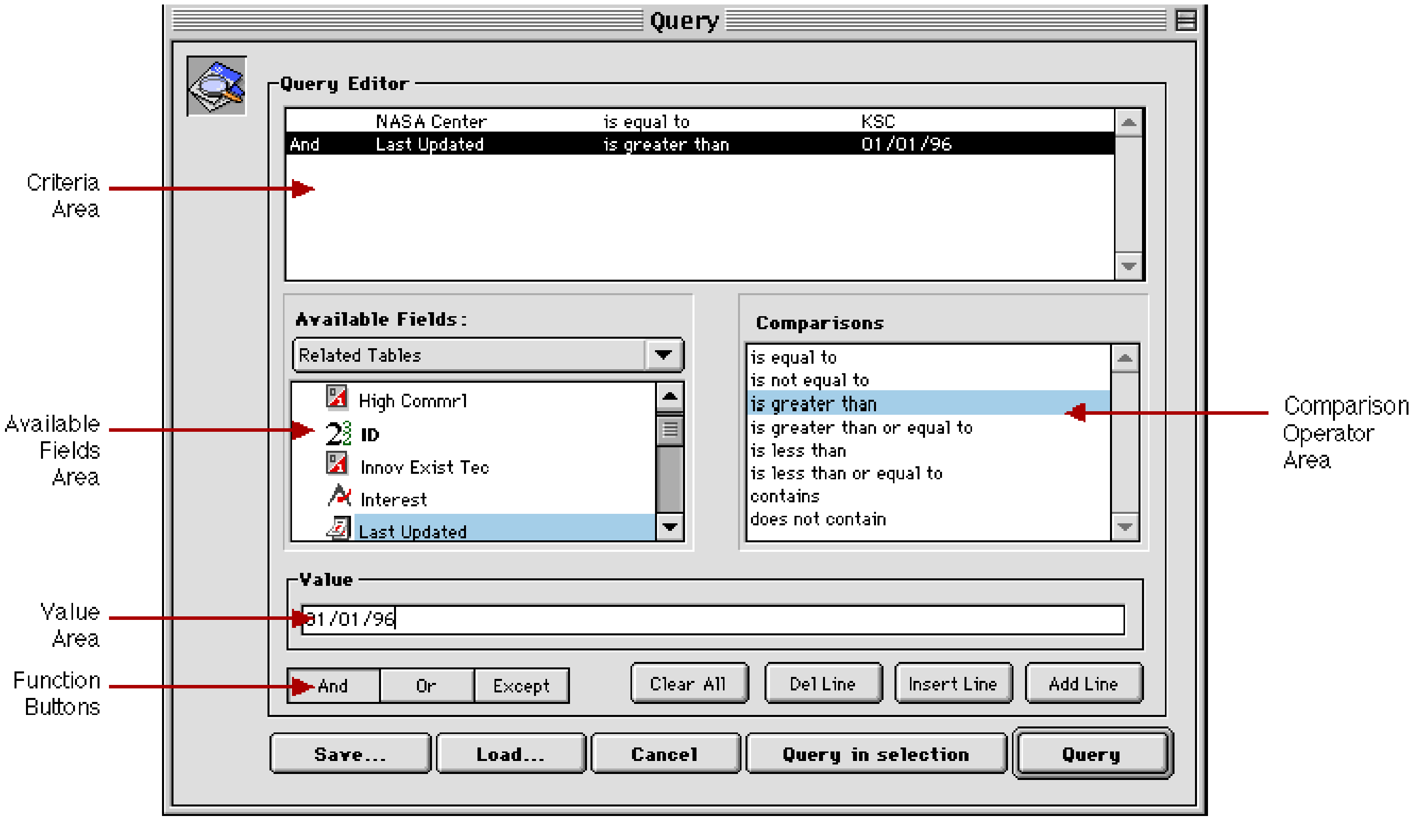


2. Clicking the *Query* button at the bottom of the List Window,

Query button from the List window

Item Glossary

Query Editor Window Areas



The Query Editor consists of the following areas:

Criteria area: This area displays the query as it is created or after it is loaded from a disk file.

Available Fields area: This area displays a hierarchical list of the fields in the current table. Indexed fields are shown in boldface. If there are related tables, the foreign key fields in the current table can be expanded to display the fields in the related tables. The Pop-up menu changes the Available Fields to show All Tables (not normally used) or Master Table which will list the fields without showing the foreign key link to related tables.

Comparison Operator area: This area displays a list of comparison operators.

Conjunction buttons: This area contains three buttons that correspond to conjunction operators that can be used to join the current simple query to the previous simple query.

Value area: This contains the value for which to search.

Query in selection button: This button performs the query only on the records in the current selection.

Query button: This button performs the query on all the records in the current table.

Query Editor buttons: This area is used to save queries, load other queries from disk, cancel the query, or execute the query.

TIP: Both the Available Fields area and the Comparison Operator area can respond to keyboard input (known as type-ahead). To use this feature, activate the area by tabbing until the area is outlined by a double borderline. At this point, any keyboard input will cause the display to auto-scroll to the nearest matching item in the list.

Query Editor Available Fields Icons

Alpha field

Text Field

Boolean Field (Yes/No) (True/False)

Date Field

Integer Field

Long Integer Field

Real Number Field

Time Field

Using the Query Editor

Simple Examples from the [People] table

To retrieve all of the records that have an area code of 919:
- Select "Area Code" from the Available Field area
- Select "is equal to" from the Criteria area
- Enter "919" as the value in the Value area

To retrieve all of the records of people that live in the State of California:
- Select "State" from the Available Field area
- Select "is equal to" from the Criteria area
- Enter "CA" as the value in the Value area

To retrieve all of the records of people that were updated after a certain date:
- Select "Last Updated" from the Available Field area
- Select "is greater than" from the Criteria area
- Enter "02/13/96" as the value in the Value area

Wild Cards

In order to search for records that begin with a specified string, use the "is equal to" operator and enter the wildcard character ("@") at the end of the value to search for.

For example, to search for companies whose names begin with the string "Boe", use the following query:
- Select "Name" from the Available Field area
- Select "is equal to" from the Criteria area
- Enter "Boe@" as the value in the Value area

Compound Queries

When a compound query is built, 4th Dimension evaluates the simple queries in the order in which they appear in the Query editor (i.e., from top to bottom). There is no precedence among the conjunctions. That is, And doesn't have priority over Or. Thus, if more than two simple queries are used in building the compound query, the order in which the simple queries are entered can affect the results of the query.

If a third simple query is required, the condition can either be added to the existing compound query or inserted between the first two simple queries. To add the new query to the end of the existing queries, click Add Line. To insert the new query, highlight the last query and click Insert Line. The new query is inserted above the line just highlighted.

Saving a Query

If a complex query is established, the query can be saved for later use by using the *Save* button.

NOTE: Only the definition of the query is saved, not the results of the query.

NOTE: Quick report files in 4D for Windows are denoted by the file extension ".4QF".

Queries can be shared between Mac And PC users. To share a query created on a Mac to a PC user, the PC user must have the extension ".4QF". To share a quick report created on a PC with a Mac user, the user must convert the file using a special utility called 4DFileTypeConv. The utility can be found on the NASA TechTracS support web site under NASA TechTracS Utilities in the Software section.

Loading a Query

A saved query can be loaded by clicking the Load button and selecting the file that contains your query. The query can then be reapplied.

Tutorials

Tutorial #1 - Finding Total Extramural $$$. (5 minutes)
Extramural $$$ are obligations associated with Contracts, Grants and other activities.

NOTE: Does not include purchase orders under $50,000.

1. Find the set of active [Inventory] records by using the query editor to execute the following query:

   [Inventory]CY Cost is greater than 0
   or
   [Inventory]CY Obs is greater than 0

2. Use the Set Manager to create a set called "Active."

   TIP: The Query Editor dialog is resizable. Click on the lower right hand corner of the Query Editor dialog to stretch the window.

Tutorial #2 - Find Active [Contract_Grant] records. (2 minutes)

1. Relate [Inventory] records (set called "Active") to Contract_Grant to find active Contract_Grant records by using the Relate pop-up.

Tutorial #3 - Find Total Activities have reporting requirements (3 minutes).

1. Use the query editor to *Query in Selection* of [Contract_Grant] which Total Activities have reporting requirements.

   [Contract_Grant]NewTechnology Clause is equal to True
   or
   [Contract_Grant]PR Retention by Grantee is equal to True
   or
   [Contract_Grant]PR Retention by Contractor is equal to True
   or
   [Contract_Grant]Reporting Obligations is equal to True
   or
   [Contract_Grant]Contract Number is equal to ncc@
   or
   [Contract_Grant]Contract Number is equal to nag@
   or
   [Contract_Grant]Service_Product is equal to a@
   or
   [Contract_Grant]Kind of Contract or Grant is equal to sbir@
   or
   [Contract_Grant]Kind of Contract or Grant is equal to sttr@

   TIP: You can type ahead to locate field faster. To type ahead, the active area of the Query Editor dialog must be the Available Fields section. Press the Tab key until you see a double box around the Available Fields section.

2. Use the Set Manager to create a set called "Clause." Records in selection of [Contract_Grant] equals Activities with Clause.

3. Save query in a file named "E-Activities_wClause.4df."

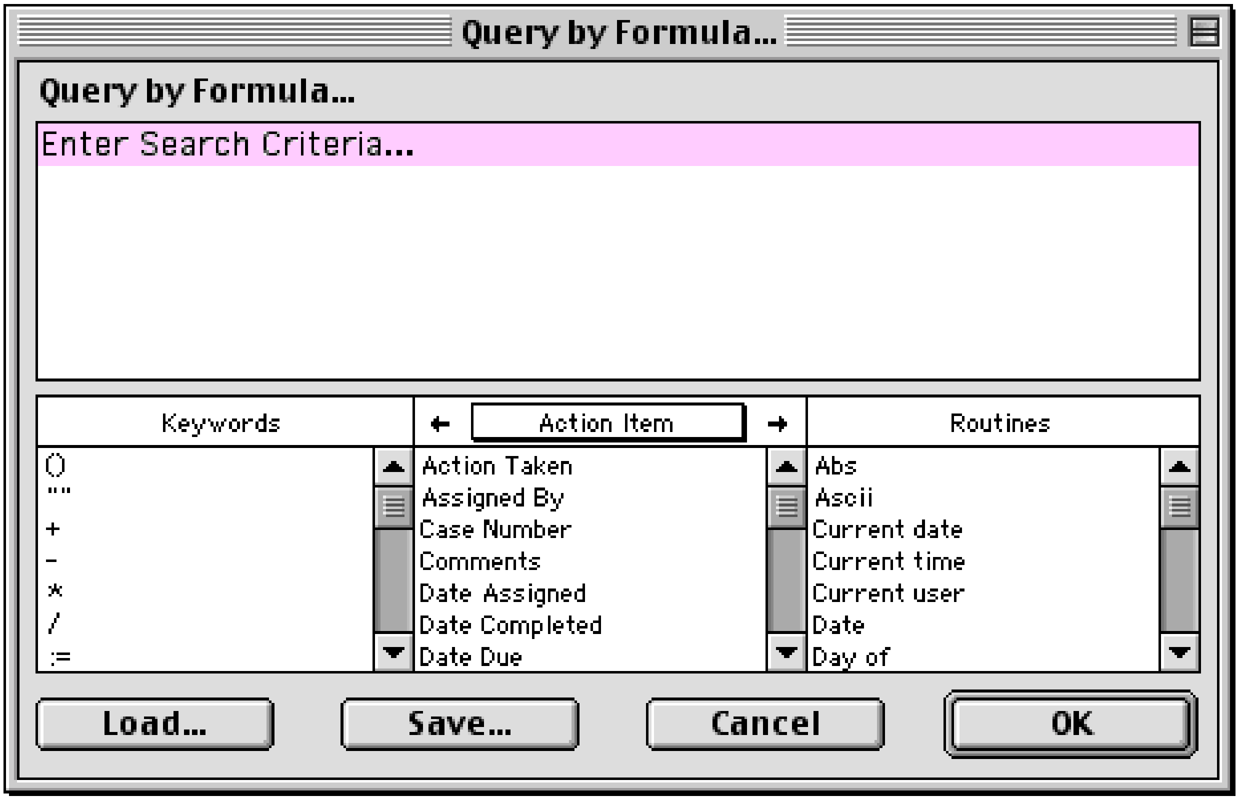
Query by Formula

Overview

Query by Formula is a dialog that allows the user to construct search criteria for the current table using 4D expressions or formula. This query may be simple, comparing a field to a value, or complex, performing calculations on records in a related table. The user performs searches based on the results of a calculation. The formulas must be Boolean expressions; they must result in either True or False when applied to each record in the file. Those records that generate a True result will be included in the final selection. See Comparisons in the NASA TechTracS Expressions, section 05.04.

Query by Formula changes the current selection of records and makes the first record in the selection the current record. These sequential searches are performed on Fields and Subfields in the current table, in related tables or in All Tables.

The Query by Formula Window

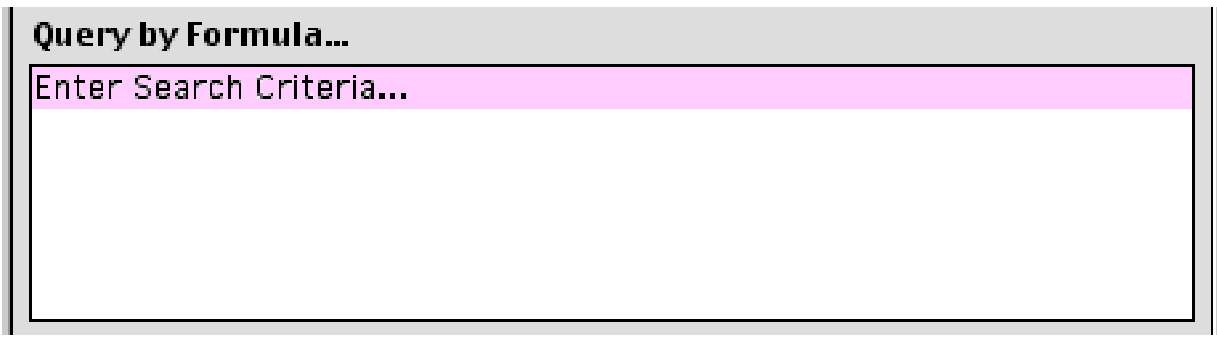


Item Glossary

The Query by Formula editor consists of the following items: **Criteria** or **Formula** area, **Keywords** area, **Fields** area, **Routines** area and the Query by Formula button bar.

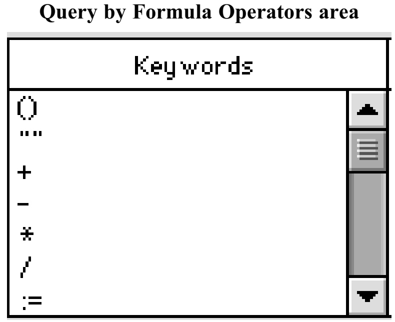
- The **Formula** area is where you write the expression on which the query will be performed. You can only write formulas that are one logical line long. That is, you cannot press the Enter key and write a second line. The editing area, however, will wrap to the next line if the statement is too long. If you need to use a formula that is more than one line, write it as a project method and use the project method in the formula.

Query by Formula Criteria area



- The **Operators** area (may be called Keywords) contains a list of operators used to build a formula. It includes of the following operators: + - * / ^ := ( ) = # > >= < <= \ ! " [ ] Some knowledge of 4th Dimension's programming language is required to make extensive use of the Formula Editor.

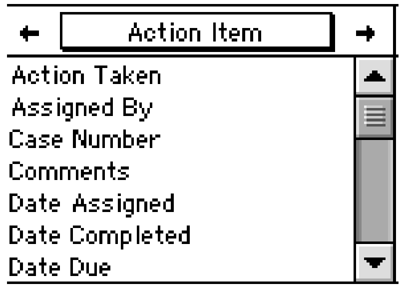
Query by Formula Operators area



Note: See page 7 for a list of the Operators and examples of their use.

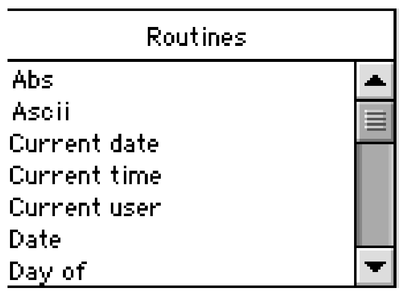
- The **Fields** area displays a scrollable list of the field names in the file. The arrows at the top of the panel allow the user to specify fields from other files to be used in the formulas. This only works with Related files. The items in italic at the bottom of the list identify the layouts that belong to the file and are not normally used when building formulas.

Query by Formula Fields area



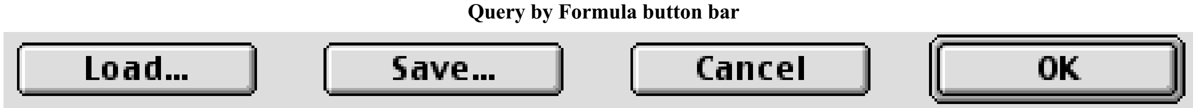
- The **Routines** area normally contains a scrollable list of pop-up menus. Each pop-up menu lists a related group of 4th Dimension commands and functions. Click and drag to select a command or function for the formula. In this case the **Boolean** pop-up was clicked and the **True** function is about to be selected. If the user clicks on the title of this panel the list of pop-up menus will be replaced with an alphabetical list of commands and functions. TechTracS global procedures and functions will be shown at the bottom of the list in italic.

Query by Formula Routines area



- The Button bar performs various actions relating to the query. When creating very complex formulas use the *Save...* and *Load...* buttons to remember and restore them. The *OK* button will initiate a search. The *Cancel* button will abort the Search Editor.

Query by Formula button bar

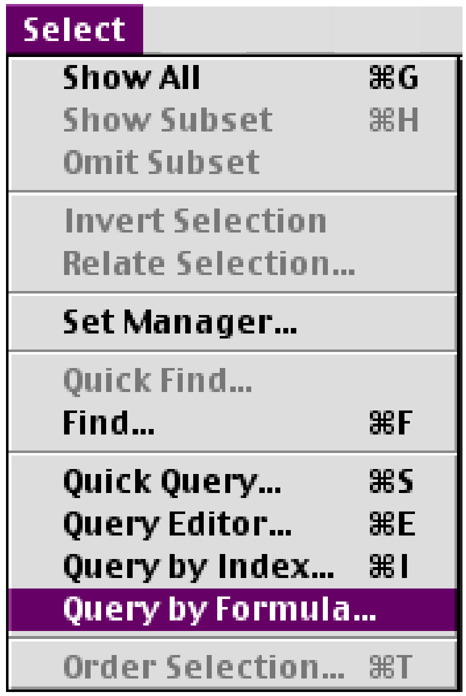


<u>Invoking Query by Formula</u>

There is only one way to invoke Query by Formula search:

- From the **Select => Query by Formula...** menu item.

Query by Formula from Select menu



Using Query by Formula

To use the Query by Formula editor:

1. Choose **Query by Formula** from the **Select** menu.

2. Use the Formula Editor to build a formula.

   OR

   Select the name of a user-written function from the Routines area.

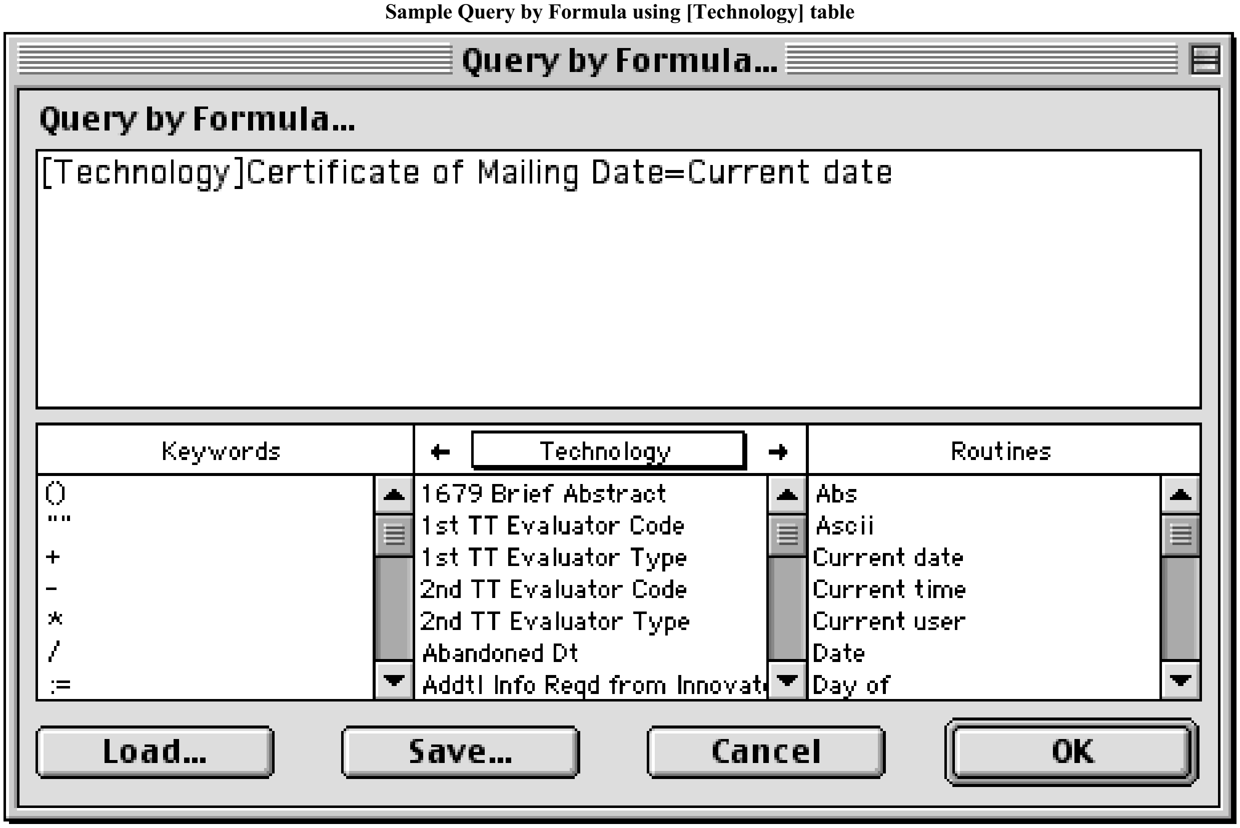
   OR

   Click the Load button to retrieve an existing formula from disk.

   NOTE: If you build a formula in the Formula editor, you can either type your function or select operators, fields, and functions from the panels at the bottom of the editor. You can drag and drop fields, commands, and keywords from their lists into the Formula editing area.

3. If you click the Load button, 4 th Dimension displays an open-file dialog box where you can select a file. When you load a file, it replaces any formula that appears in the Formula Editor.

Sample Query by Formula using [Technology] table



To save a new formula to disk:

1. Click the *Save* button. 4th Dimension displays a dialog box and asks you to enter a filename for the new formula.

2. Click *OK* to save the formula.

Formula Operators (Keywords)

Operator	Name	Example
+	Addition	[Action Item]Date Due + 7 > !12/15/99!
-	Subtraction	[Action Item]Date Due - 7 < Current date
*	Multiplication	[Contract_Grant]Contract Amount * 0.1 > 100
/	Division	[License Royalties]Amount Due / 10 > 100
^	Exponention	[Success Story]Jobs Created ^ 2
:=	Assignment	Not used in Query by Formula
()	Parentheses	Month of ([Technology]NTR Received date) = 12
=	Equality	[People]First name = "John"
#	Inequality	[People]First name # "John"
>	Greater than	[Contract_Grant]Contract Amount > 1000
>=	Greater than or equal	[Contract_Grant]Date Ending >= !12/15/99!
<	Less than	[Success Story]Jobs Created < 5
<=	Less than or equal	[Contract_Grant]Date Ending <= !12/15/98!
\	Modulus division	[Success Story]Jobs Created \ 10 < 5
! !	Time quotation	[Contract_Grant]Date Ending > !12/15/99!
""	Text quotation	[People]First name = "John"
[ ]	Table reference	[People]First name = "John"

Tutorial

Tutorial # 1 - Find Contracts that have a duration of 2 years or more.

1. Select Query by Formula from the [Contract_Grant] table.

2. Select [Contract_Grant]Date Ending field.

3. Type in "-".

4. Select [Contract_Grant]Date Awarded field.

5. Type in ">=2".

6. Click *OK*.

Sets

Overview

Overview

A set is a compact representation of a selection of records. Sets are generally used for the following purposes:

- To save and later restore a selection when the order does not matter
- To access the selection a user made on screen (the UserSet)
- To perform a logical operation between selections

The idea of sets is closely bound to the idea of the current selection. Like a current selection, a set represents a selection of records. A set does this by using a very compact representation for each record. A set "remembers" which record was the current record at the time the set was created. The following table compares the concepts of the current selection and of sets: (For more information about selections, see the section Selections).

Comparison	Current Selection	Sets
Number per table	1	0 to many
Sortable	Yes	No
Can be saved on disk	No	Yes
Combinable	No	Yes
Contains current record	Yes	Yes, as of the time the set was created
RAM per record(in bytes)	Number of selected records * 4	Total Number of records/8

There can be many sets for each table. In fact, sets can be saved to disk separately from the database. To change a record belonging to a set, first you must use the set as the current selection, then modify the record or records.

NOTE: A set is never in a sorted order—the records are simply indicated as belonging to the set or not.

Creating a New Set

<u>Overview</u>

New Sets can be created by usage of the Automatic Sets preference or by selecting the New Set popup item from the Sets button or by clicking the *New Sets* button on the Set manager dialog window. This section describes the latter (see section 03.07.04 for more info on Automatic Sets).

Sets button

New Set... from the Sets button popup

<u>Using New Set</u>

When you select New Set from the Sets button you get a *Create a New Set...* dialog.

Create a New Set... dialog for the [Technology] table

The *Create a New Set...* dialog is used to name a set or create a set or to create and name a defined set. You can name a set by entering a name in the entry box. The "Containing" label allows you to select three defined sets and one user created sets. Clicking the *No records*, *All [current table] Records*, or the *Current Selection (# records)* radio button will create that type of set and make the selection of records making up the set the current selection. You may then go back and give the set a different name. Click the *OK* button to return to the listing screen displaying the records in the set.

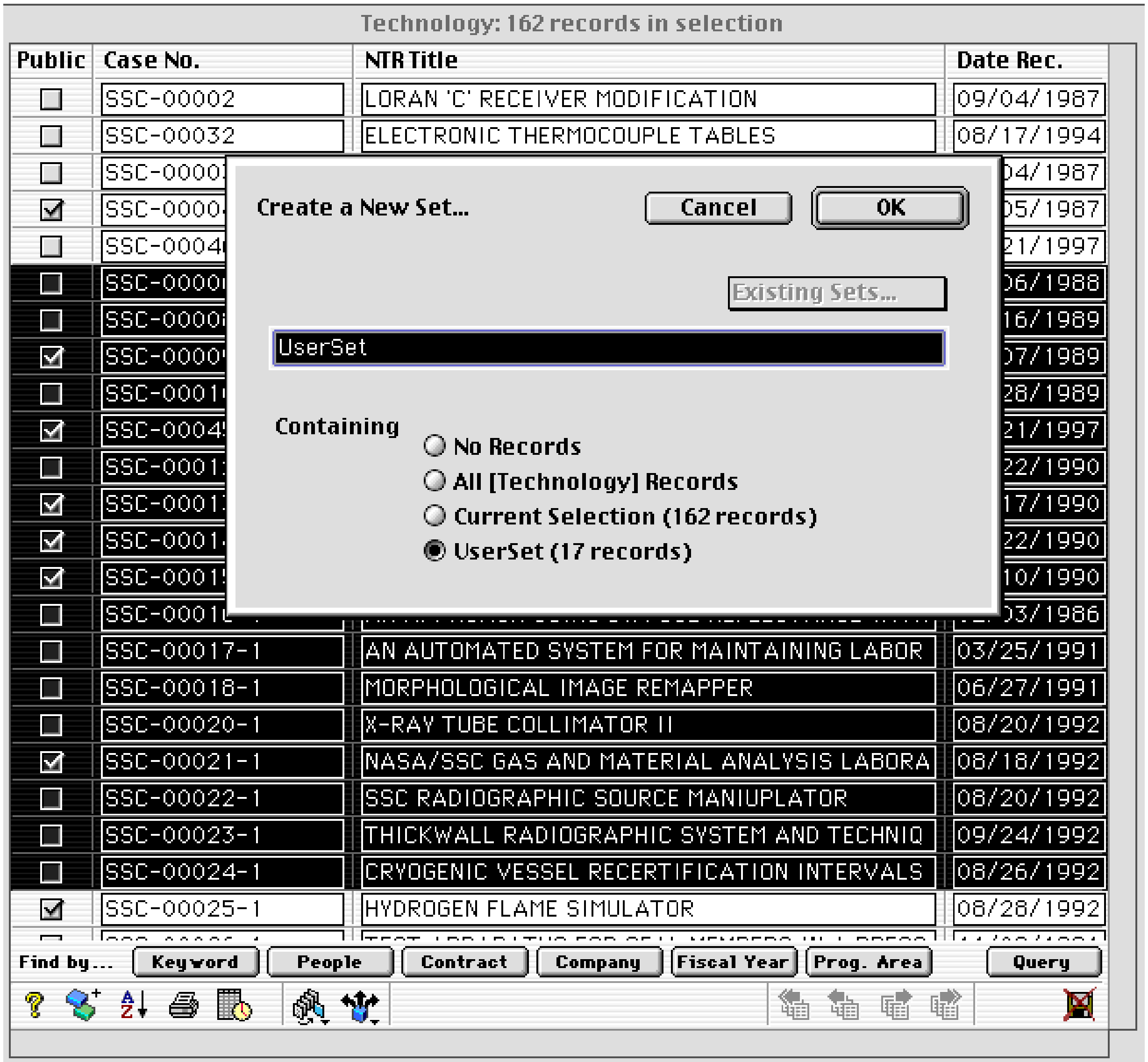
All Records radio button creates the "All Records" set

<u>UserSet Set</u>

4th Dimension maintains a system set named UserSet. UserSet automatically stores the most recent selection of records highlighted on screen by the user. There is only one UserSet for a process. Each table does not have its own UserSet. UserSet becomes “owned” by a table when a selection of records is displayed for the table.

The *User Set* radio button is dimmed because there was no active/recent selection of records when the New Set dialog was invoked. If you click and highlight a record or group of records in a table and enter the New Set dialog, then the *User Set* radio button would be active and selected. Click the *OK* button to return to the listing screen displaying the records in the User Set.

Creating the User Set based upon selected records in the [Technology] table



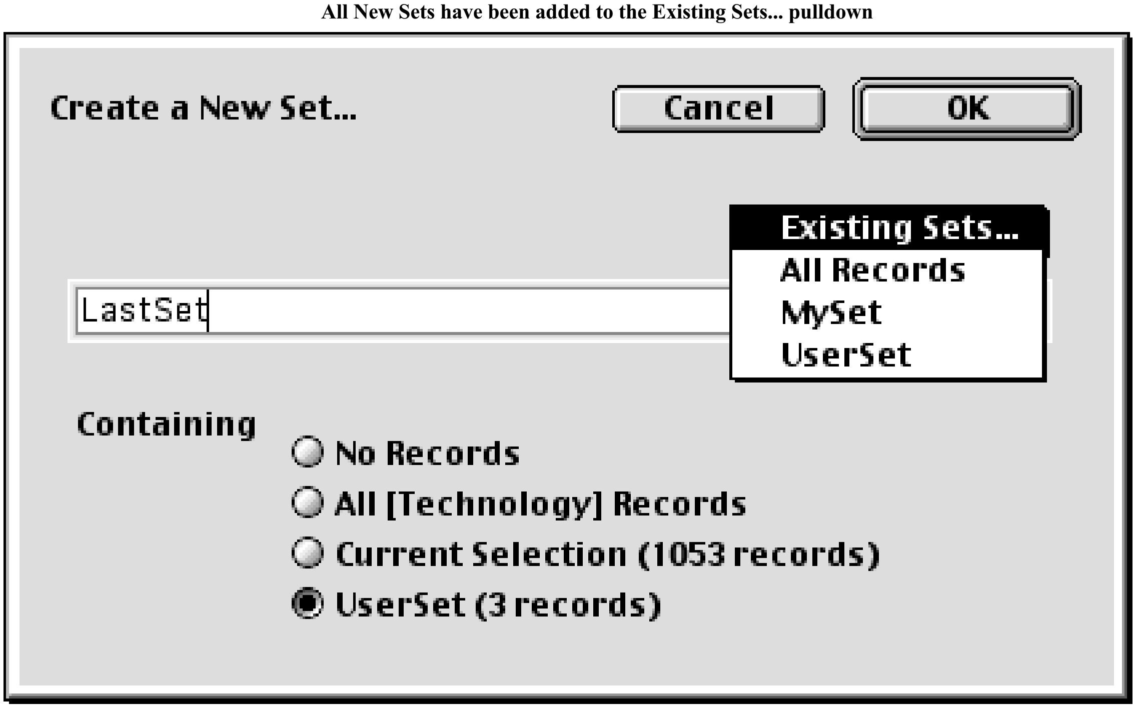
If you then click the *Sets* button again you will see *User Set* listed in the popup. Simply selecting *User Set* will display the records making up the *User Set* in the List window. If you then go back into the New Set dialog you will see that the *Existing Sets...* pulldown (below the *Cancel* and *Ok* buttons) is active and has *User Set* listed.

User Set appearing in the Sets button popup

NOTE: All sets created via the New Set dialog will appear in the Set button's popup and the *Existing Sets...* pulldown

Changing a User Set name to "MySet"

All New Sets have been added to the Existing Sets... pulldown



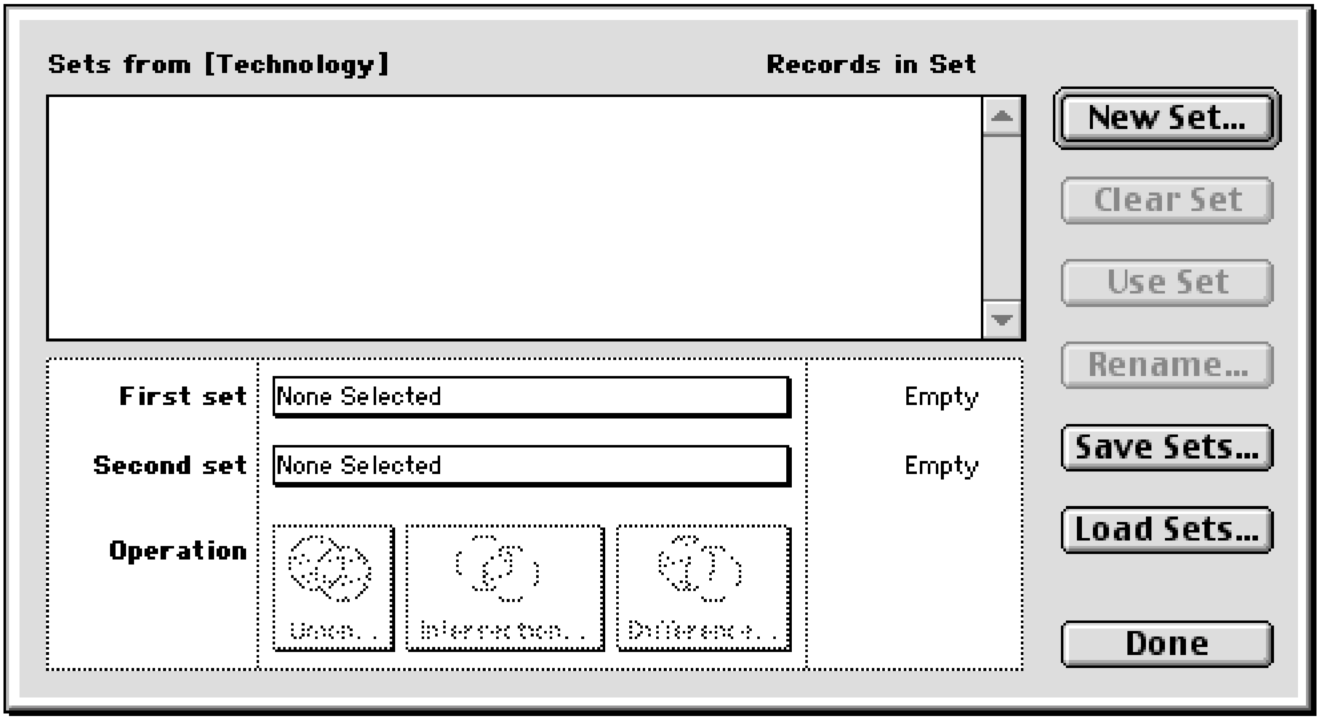
Set Manager

Overview

The Set Manager can control most aspects of sets usage in TechTracS. The Set Manager can be used to :

- create a new set
- clear a set
- use a selected
- rename a set
- save a set
- load a set
- perform set operations

Set Manager dialog for the [Technology] table

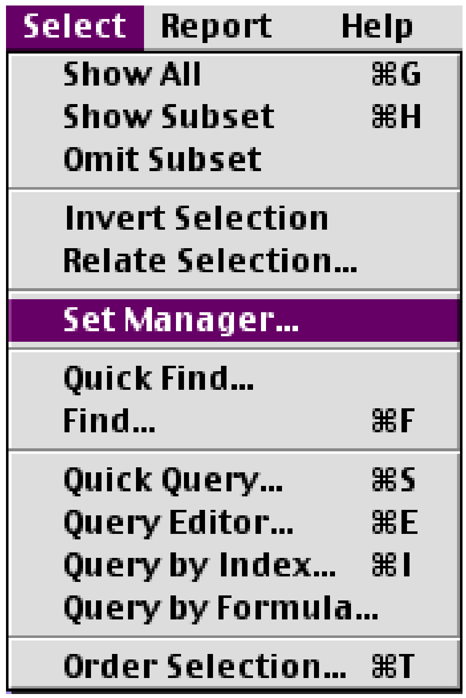


Invoking Set Manager

The Set Manager dialog can be displayed by:

- selecting **Select => Set Manager...** from the menu bar

Set Manager from the "Select" menu



- or selecting Set Manager... from the Sets button popup on the Function bar

Sets button

Set Manager from Sets button

Create A New Set

You can create a new set in the Set Manager by clicking the *New Set* button. This invokes the New Set dialog. See section 03.07.01 Creating a New Set for more information.

Clear Set

Clicking the *Clear Set* button in the Set manager dialog deletes the selected set name from the *Sets from [current table]* box. Typically, you select a set, click the *Clear Set* button, click the *OK* button in the confirmation dialog and you are returned to the Set Manager window.

NOTE: The set name you cleared is still visible in the *Sets from [current table]* box; however, it is not active/selectable. This appears to be a small bug. Clicking the *Done* button and the returning to the Set Manager dialog will actually move the cleared set(s) from the *Sets from [current table]* box.

Clear the Set confirmation dialog

Use Set

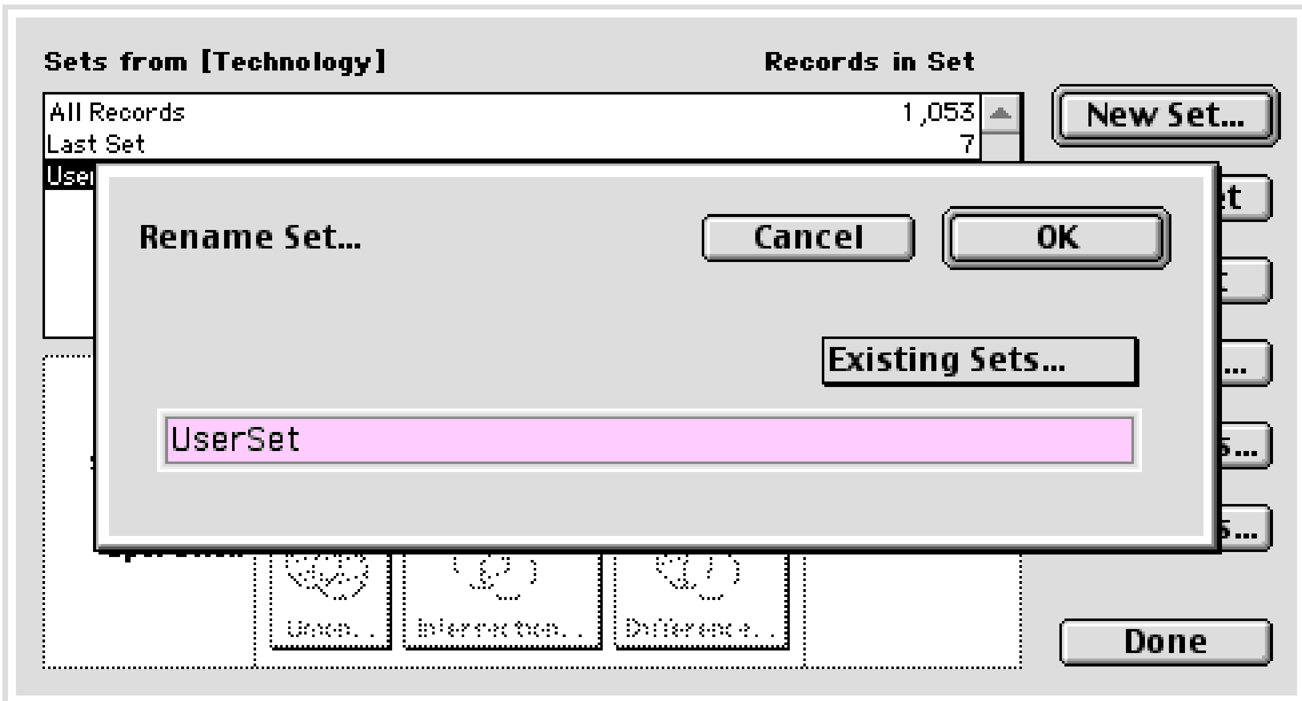
The *Use Set* button makes the currently selected set the current selection. After a set is selected and the *Use Set* button is clicked, the Set manager dialog closes and the List window displays the records in the set.

Rename Set

Clicking the *Rename...* button displays the *Rename Set* dialog. You can either :

1. Type the new name of the selected set in the field and click the *OK* button

Rename Set dialog box



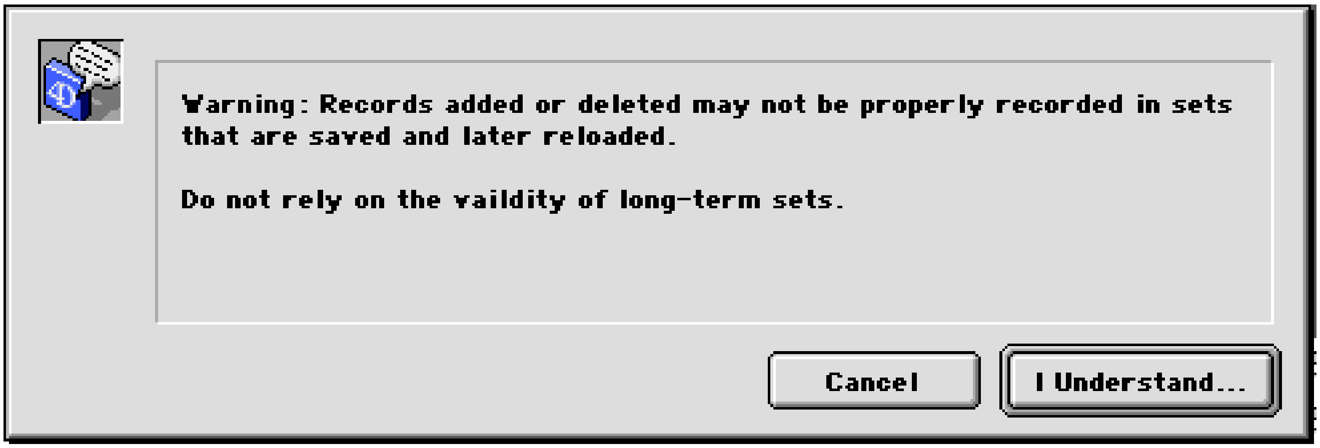
2. Select a set name from the *Existing Sets* pulldown and click the *OK* button to the *Replace existing set* confirmation dialog. This renames the current set to the selected name in the pulldown, thereby deleting the old set.

Replace existing Set dialog

Save Set

The *Save Set* button is used to save the selected set on the disk using the OS specific Save dialog. Save set is often used to save to disk the results of a time-consuming search. The first time you save a set in a session, you must address the save set warning dialog.

Save Set warning dialog



The document need not have the same name as the set. If you supply an empty string for document, a Create File dialog box appears so that the user can enter the name of the document.

You can load a saved set with the *Load Sets...* button.

NOTE: Again, remember that a set is a representation of a selection of records at the moment that the set is created. If the records represented by the set change, the set may no longer be accurate.Therefore, a set saved to disk should represent a group of records that does not change frequently. A number of things can invalidate a set: modifying a record of the set, deleting a record of the set, or changing the criteria that determined the set. Also remember that sets do not save field values.

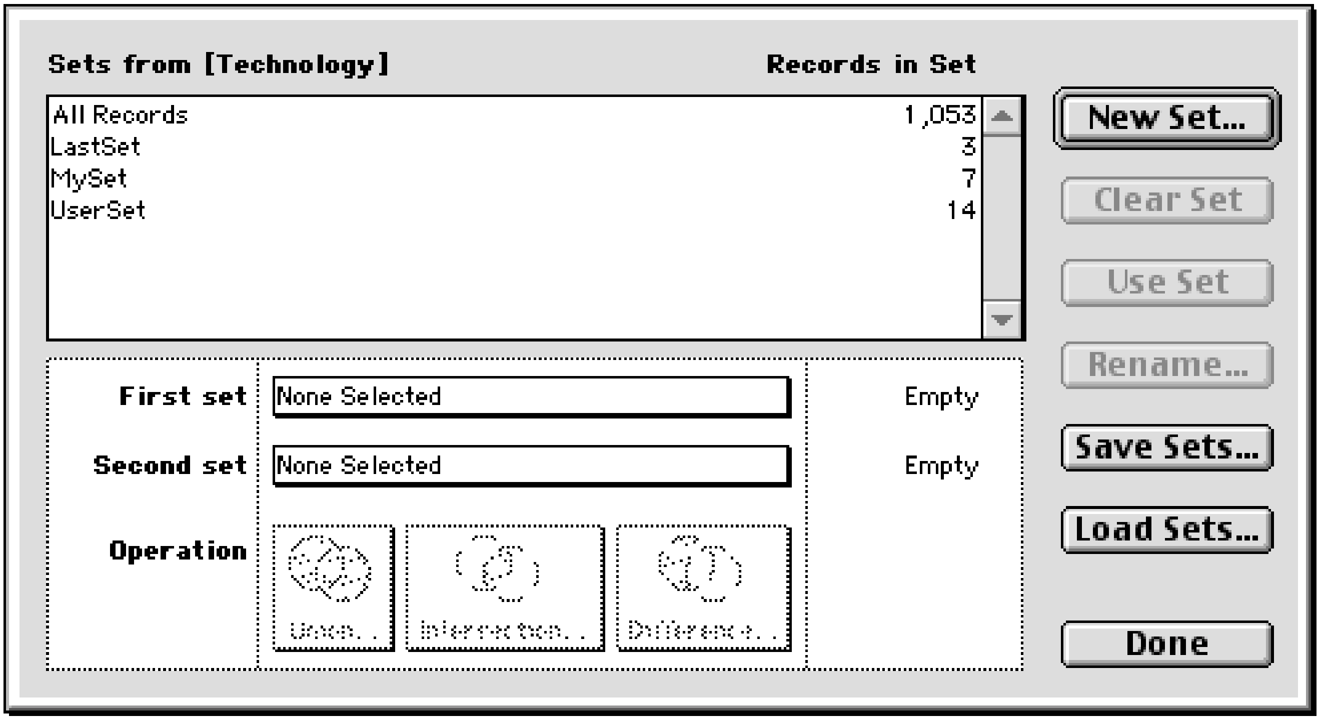
Load Set

The *Load Set...* button allows you to load a set from a document that was saved with the *Save Set* button. Clicking *Load Set...* displays a OS dependent Open File dialog box appears where you choose the set to load.

The set that is stored in document is loaded into the *Sets from [current table]* box. If the set loaded from disk has the same name as an existing (i.e. created in memory) set, the set created in memory is overwritten.

Set Operations
The Set manager allows you to perform the basic Set operations. See section 03.07.03 Set Operations for more details.

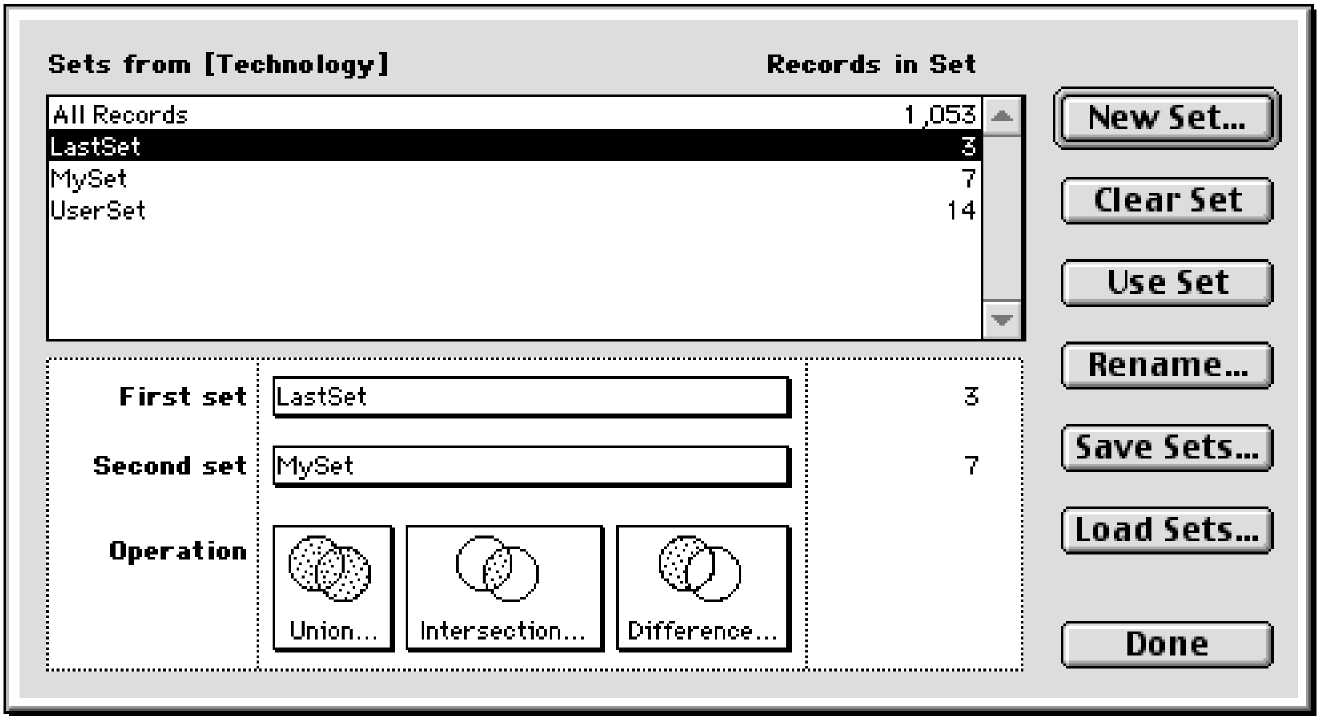
Set Manager dialog window



Generally you:

- decide which operation (Union, Intersection, Difference) you want to perform,
- select the first set from the None Selected pulldown (beside the **First set** label),
- select the second set from the None Selected pulldown (beside the **Second set** label),

Sets for operations

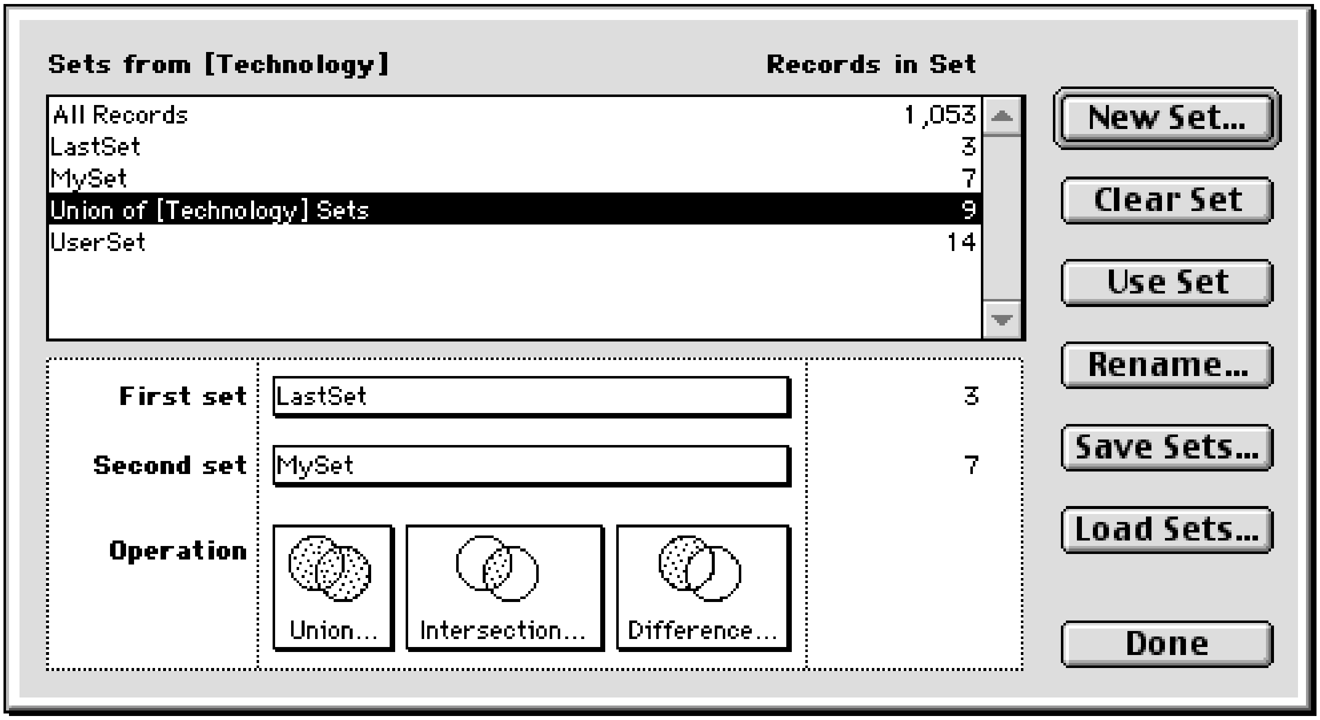


- Select the type of operation and click *OK*

Union dialog

- See the set added to the sets list

Operation Set added to the Set Manager



Set Operations

Overview
Difference
Intersection
Union

Overview

Sets offer a powerful, swift means for manipulating record selections. Besides the ability to create sets, relate them to the current selection, and store, load, and clear sets, 4th Dimension offers three standard set operations:

- Difference
- Intersection
- Union

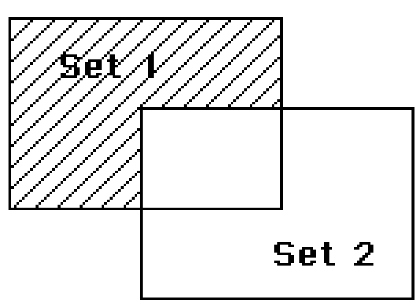
Difference

Difference compares two sets and excludes all records that are in the second set from the resulting set. In other words, a record is included in the resulting set only if it is in the first set, but not in the second set. The following table shows all possible results of a set Difference operation.

Set 1	Set 2	Result Set
Yes	No	Yes
Yes	Yes	No
No	Yes	No
No	No	No

The graphical result of a Difference operation is displayed here. The shaded area is the result set.

Difference Operation



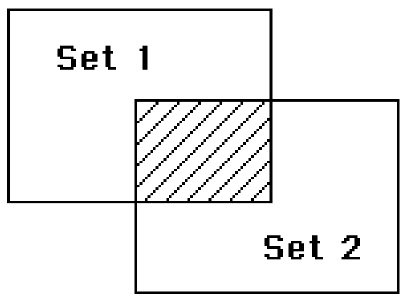
Intersection

Intersection compares two sets and selects only the records that are in both. The following table lists all possible results of a set Intersection operation.

Set 1	Set 2	Result Set
Yes	No	No
Yes	Yes	Yes
No	Yes	No
No	No	No

The graphical result of an Intersection operation is displayed here. The shaded area is the result set.

Intersection Operation



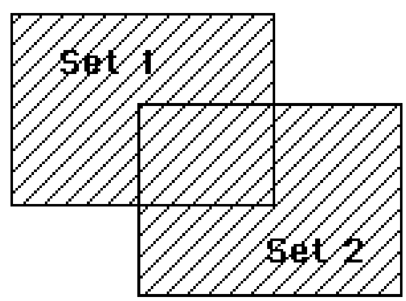
Union

Union creates a set that contains all records from two sets. The following table shows all possible results of a set Union operation.

Set 1	Set 2	Result Set
Yes	No	Yes
Yes	Yes	Yes
No	Yes	Yes
No	No	No

The graphical result of a Union operation is displayed here. The shaded area is the result set.

Union Operation



The resulting set ("resultSet") is created by the Intersection operation. The resultSet replaces any existing set having the same name, including set 1 and set 2. Both set 1 and set 2 must be from the same table. The resultSet belongs to the same table as set 1 and set 2.

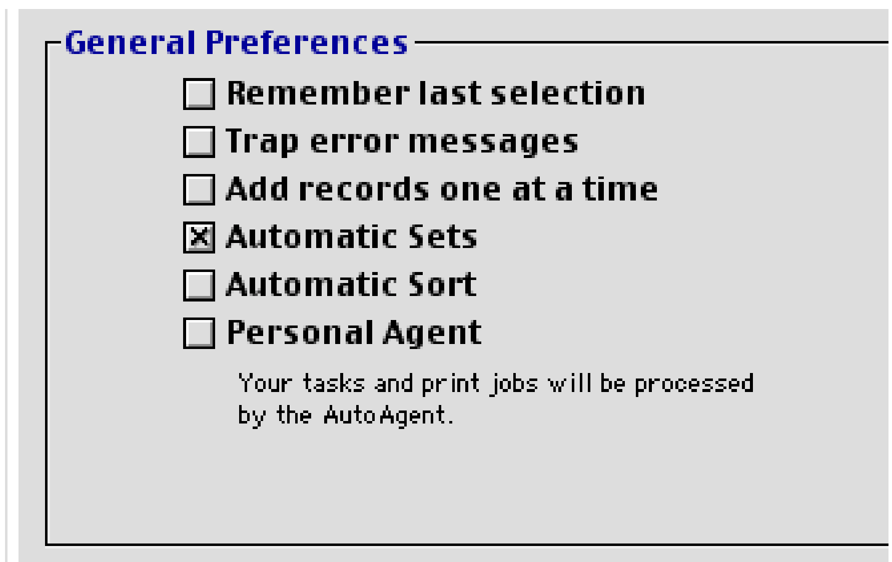
Automatic Sets

Overview

Automatic Sets is a User Preference item that is usually active (on by default except in low memory conditions). It causes NASA TechTracS to automatically generate sets for use by the Sets button and the Set Manager whenever queries are performed or subsets are used.

NOTE: Recall that 4th Dimension maintains a system set named UserSet that automatically stores the most recent selection of records highlighted on screen by the user. See Section 03.07.01 Creating a New Set for more info on this type of automatic sets.

Automatic Sets shown active in the User Preferences window



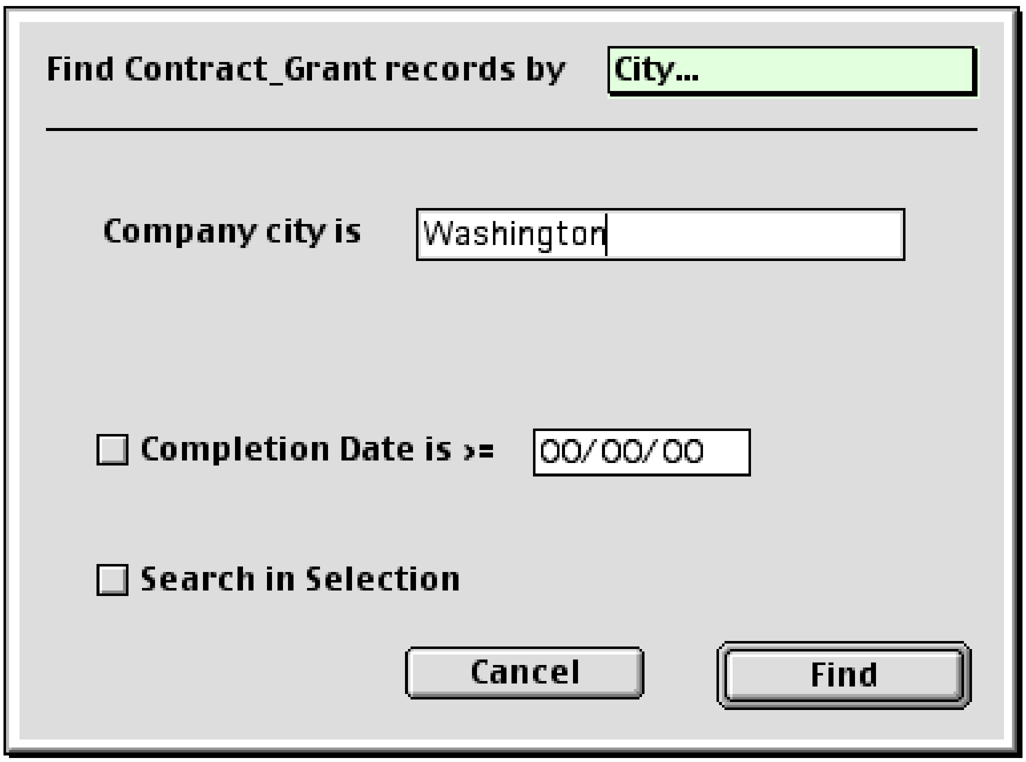
Set Button

As you do various queries with the Automatic Set preference active, each query generates a named set that appears in the Set button popup on the List window. You can select the named set from the popup and the records comprising that set will display in the List window.

Scenario 1:

You do a search using the Find search method

Find dialog City search in the [Contract_Grant] table



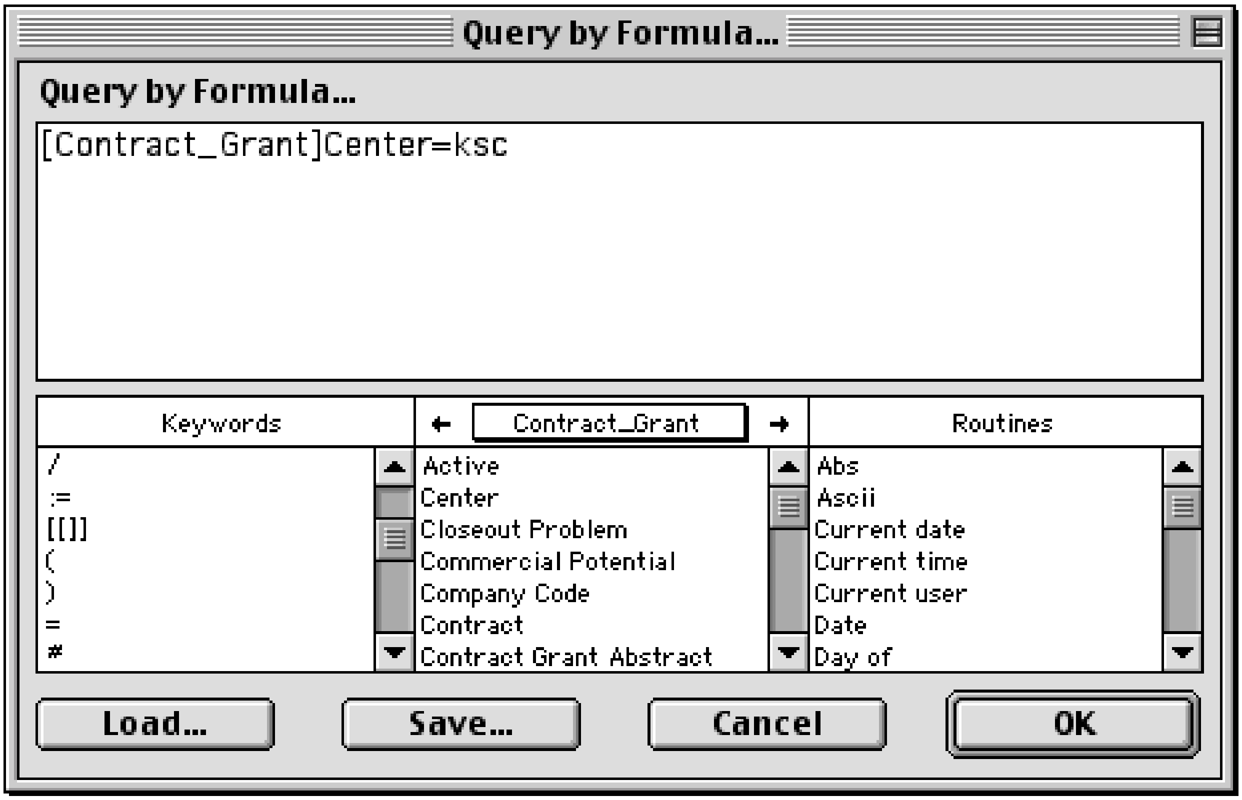
When you click the Sets button you see the set added to the popup as Last Find. Usually for the Find, the search field/area and value are provided in the popup.

Sets button

Last Find and search area/value items in Sets popup

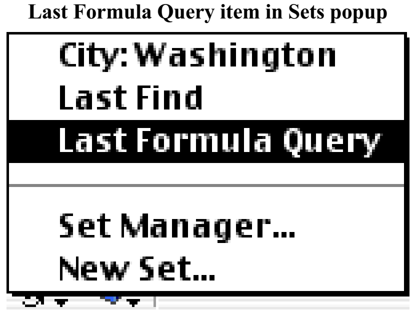
Scenario 2:
If you were to do a Query by Formula search,

Query by Formula Search for the [Contract_Grant] table



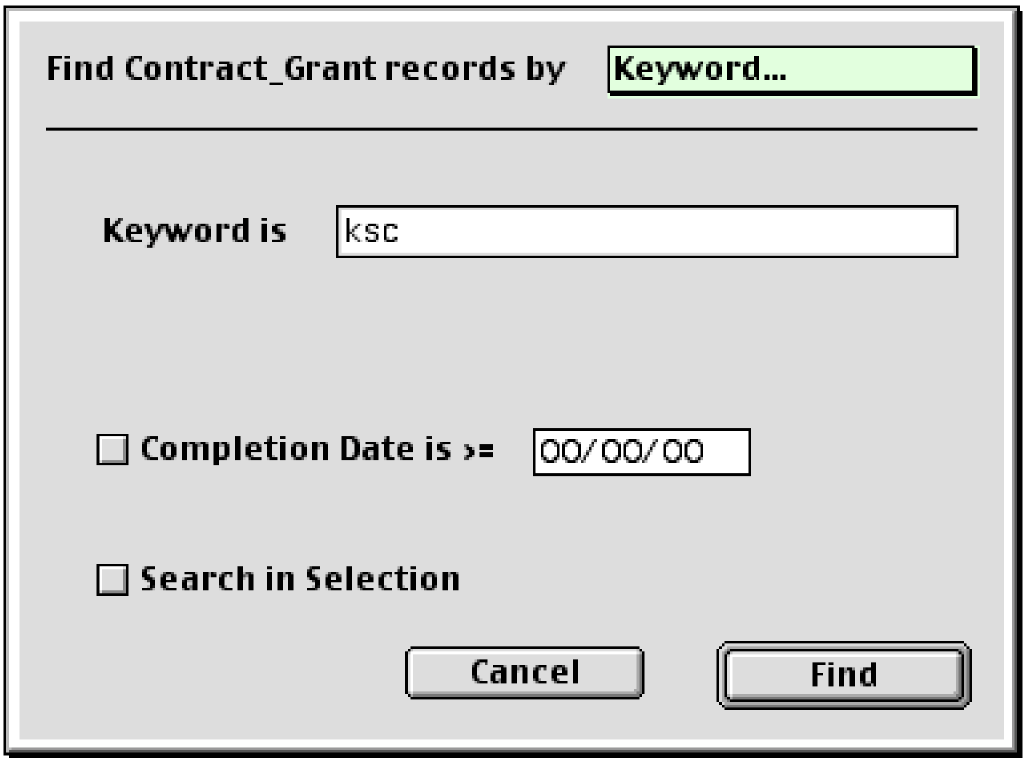
then the Sets button popup would also show the Last Formula Search list item.

Last Formula Query item in Sets popup



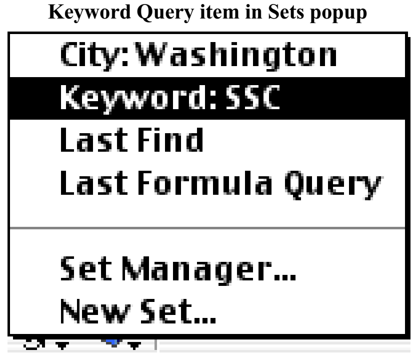
<u>Scenario 3:</u>
Doing a Find and using the Keyword area search or searching by Keywords,

Find dialog Keyword search in the [Contract_Grant] table



also adds an item to the Sets button popup. The name of this kind of set is "Keyword:" followed by the value used for the query.

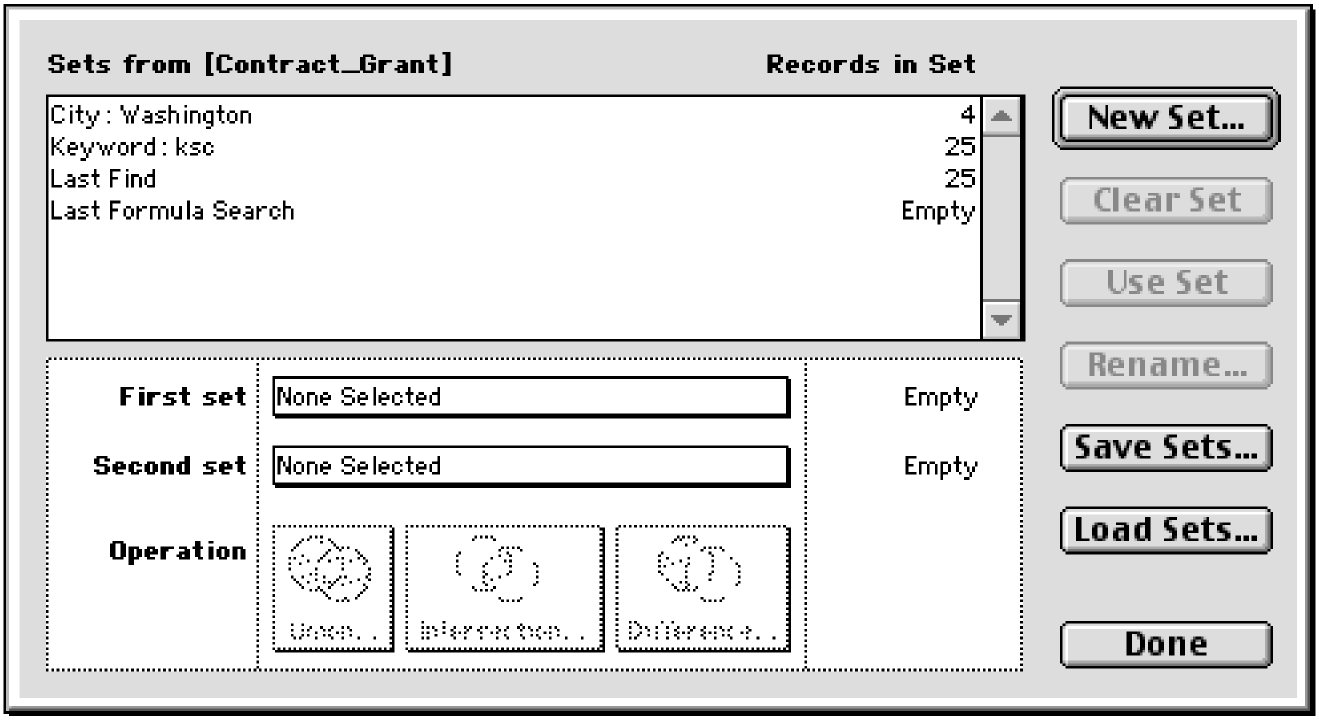
Keyword Query item in Sets popup



Set Manager

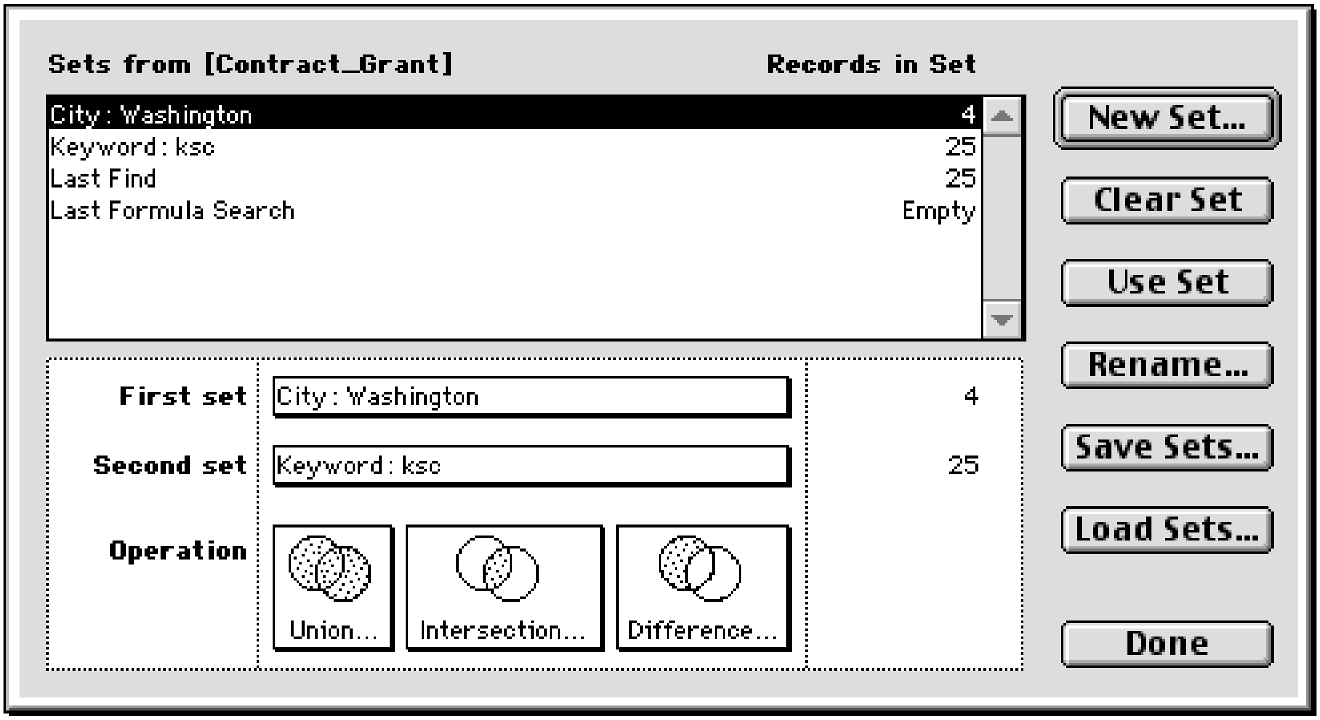
As you do various queries the name sets produced by the Automatic Sets preference are also available in the Set Manager.

Automatic Sets generated Sets

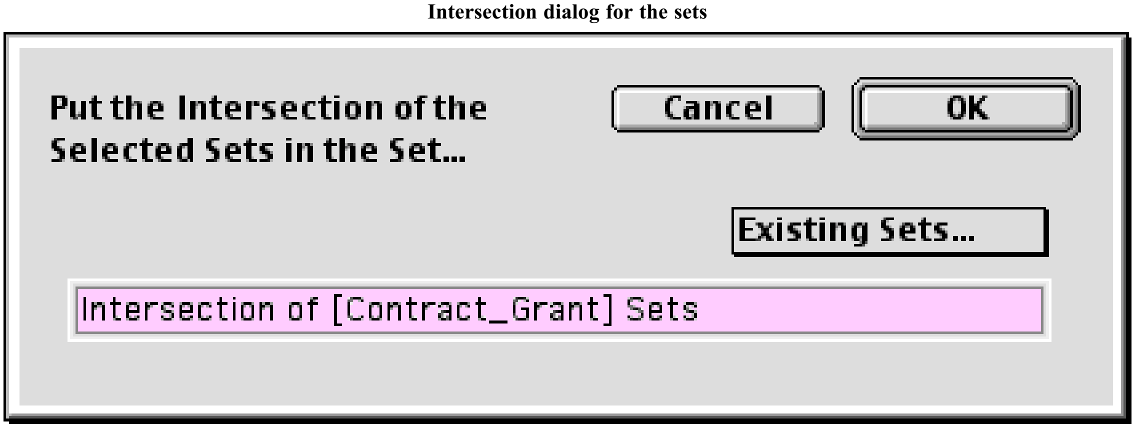


Just as with manually generated sets, you can use, clear, save, load and perform operations using them.

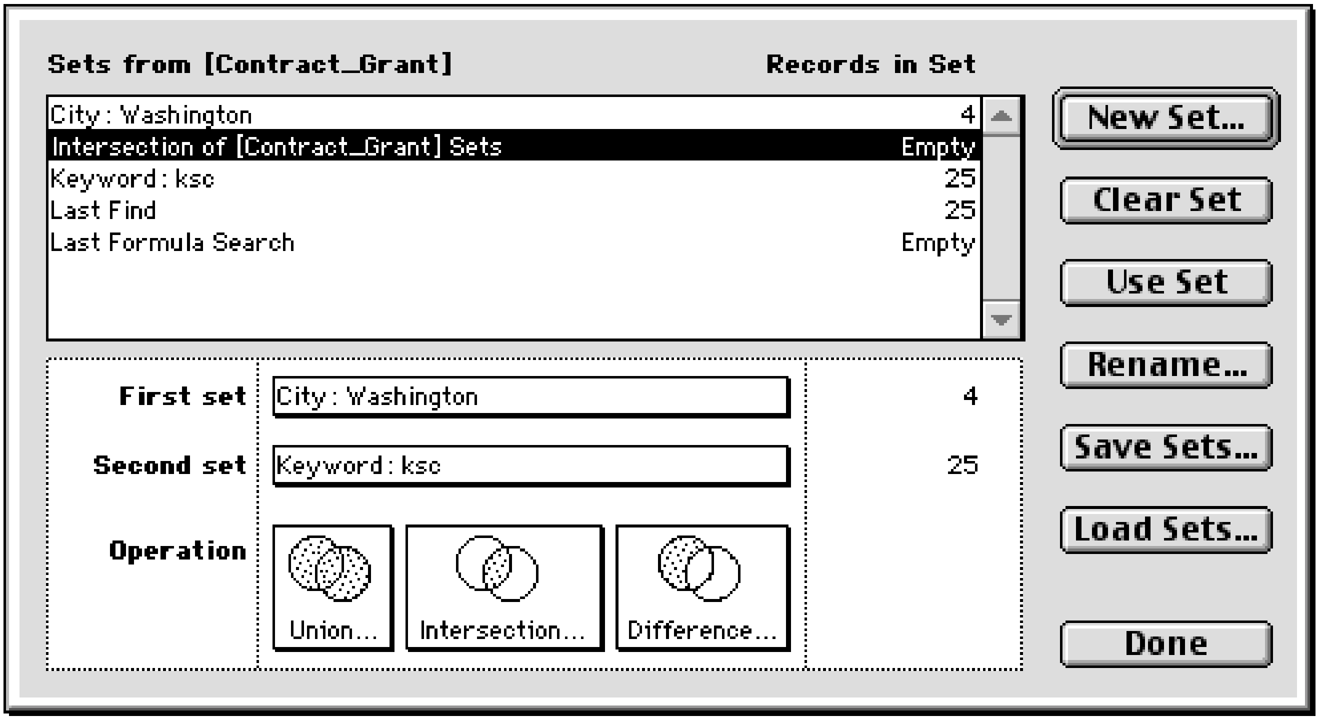
Using Automatic Sets generated in the Set Manager



Intersection dialog for the sets



Intersection of Automatic Sets generated through a set operation



Tutorial

Tutorial # 1 - Find People with [People]State field equal to "NC" (1 minute)

1. Use the Query Editor to find People with the [People]State field equal to "NC".

2. Create a set and name it "State:NC".

Tutorial # 2 - Intersection of set "Keyword:Training" and "State:NC" (2 minutes)

1. Access the Set manager

2. Choose "Keyword:Training" as first set.

3. Choose "State:NC" as second set.

4. Click the *Intersection* button.

5. Name the set "Training-NC".

6. Click the *OK* button.

7. Click the *Use Set* button to make the set "Training-NC" the current selection.

Delete

Overview

The Delete operation is one of the most potentially powerful and dangerous operations in NASA TechTracS because it can damage a data file if not used properly. There is no easy way to recover records once deleted. Since this operation is so powerful, it is restricted to a select group of users and it can only be performed in certain tables.

Delete Permissions

The Delete Permissions are controlled by the Database Administrator (DBA) for each site. If you do not currently have those permissions, you will need to contact the DBA and he/she can assign those permissions to you.

Restricted Tables

There are several tables within NASA TechTracS that you will not be able to perform the delete operation from the table's Output Listing screen. Records for those tables would have to be deleted from within the included form that they are associated with. The following is a list of tables that you will not be able to delete records from the Output Listing screen: [Awards by Innovator], [Award Process], [License Chronology], [License Report Content], [License Reports], [License Royalty Distribution], [Partners], [Partnership UPN_FPN], [Partnership UPN_FPN FY], and [SBIR_STTR Funding Request].

Performing A Delete

Only selected records can be deleted. If you are deleting a single record, click on it once to highlight and select the record. If you are deleting multiple records then you can select the records in one of two ways. If the selection of records are continuos, click once on the first record, hold down the SHIFT key, then click the last record. All the records between and including the first and last record will be selected. If the selection of records are not continuos, then each record is selected while holding downa the CMD key on the Mac or the CTRL key on the PC.

After you have selected the record(s) that you want to delete, from **Enter** menu and select **Enter** => **Delete**. NASA TechTracS will then prompt you with a message to confirm the delete. If you click *OK*, then NASA TechTracS will delete the record(s) from the current table. If you click *Cancel*, then NASA TechTracS will return you back to the Output Listing with the records chosen for deletion as the current selection for the current table. The window title will then change to reflect the number of records that are in the selection no matter which option you had chosen.

NOTE: The Delete operation is final. Once deletion is confirmed, you will not be able to use **Edit** => **Undo** to restore the recods.

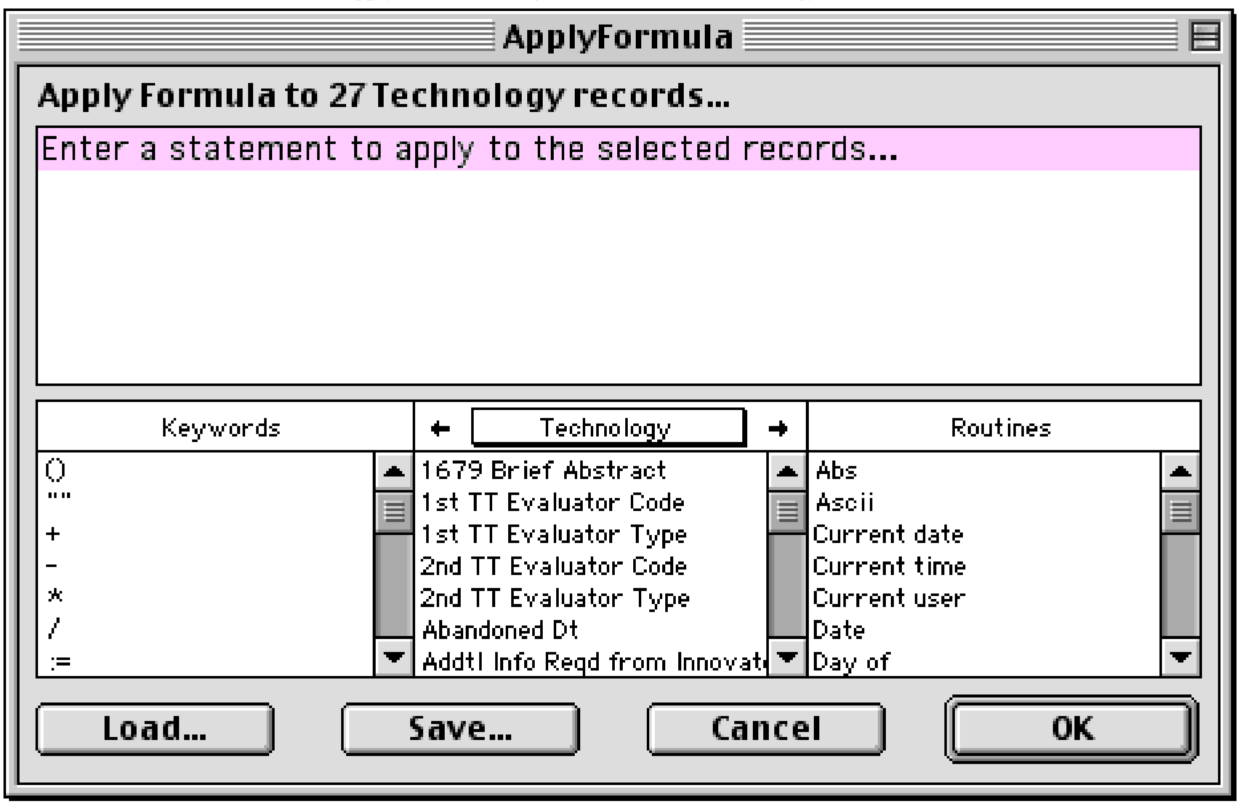
Apply Formula

Various Conditions to Observe
Getting Started
Using Apply Formula
Tutorial

Overview

Apply Formula is generally used when a specific field needs to be changed for a selection of records. For instance, a name field needs to be changed from one name to another, or change specific dates for given fields. These actions can be performed from the Apply Formula screen by any user who is in the DBA group. This feature requires cautious use due to it's capability to apply changes to multiple records.

Apply Formula dialog for a selection of [Technology] records



Various Conditions to Observe

- 4th Dimension formulas are not case sensitive. Formulas can be entered in lower case and 4th Dimension will execute the formula without a problem. However, field values are case sensitive.

- Apply Formula is only applied to the current selection of records.

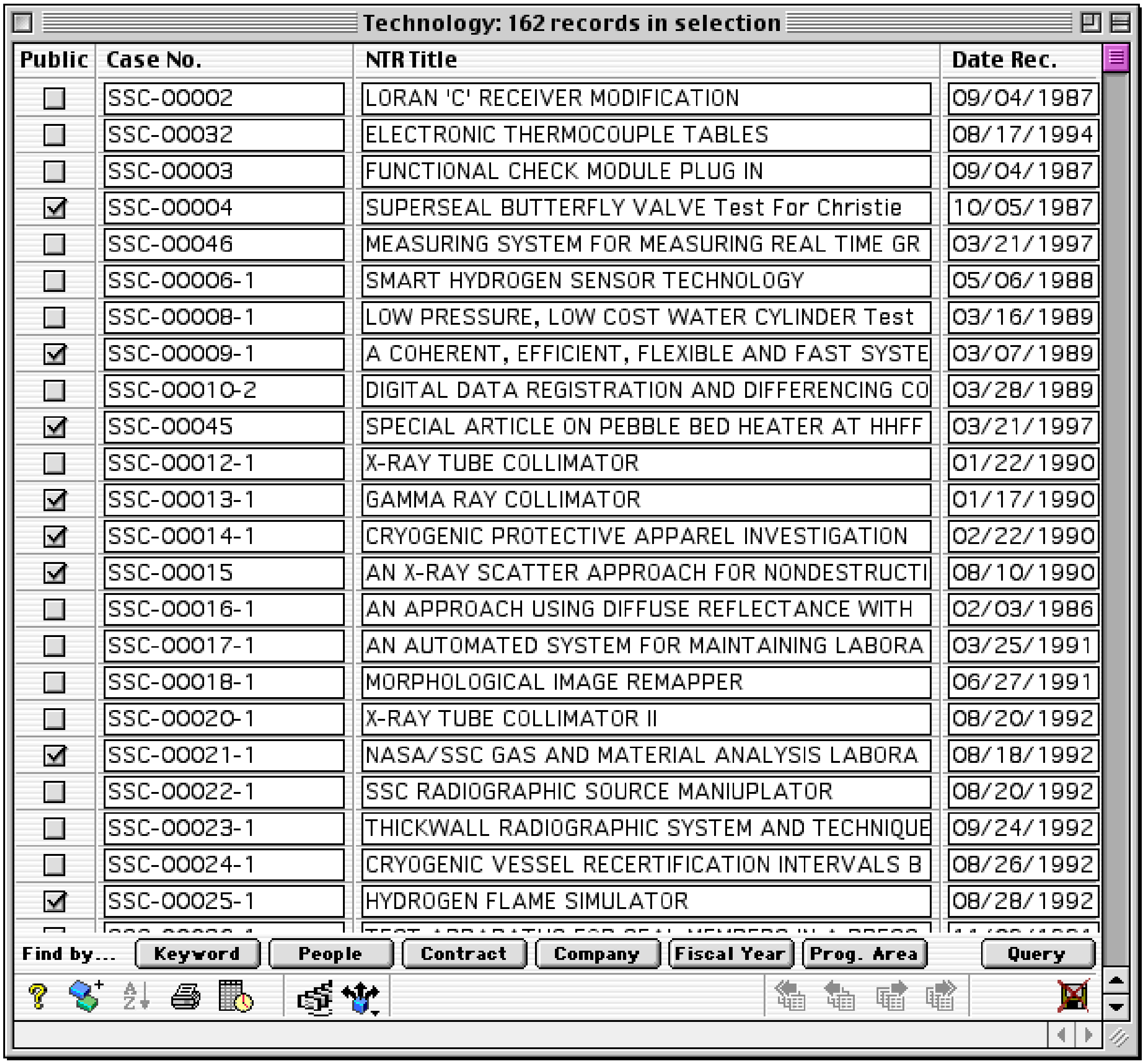
- When a lengthy (time) routine is applied, a progress thermometer is displayed to reflect the routines progress.

- An Apply Formula is ineffective if another user is working on the same record that the apply formula is attempting to modify.

Getting Started

The following screen is called the List Screen. Select the records that need to be modified.

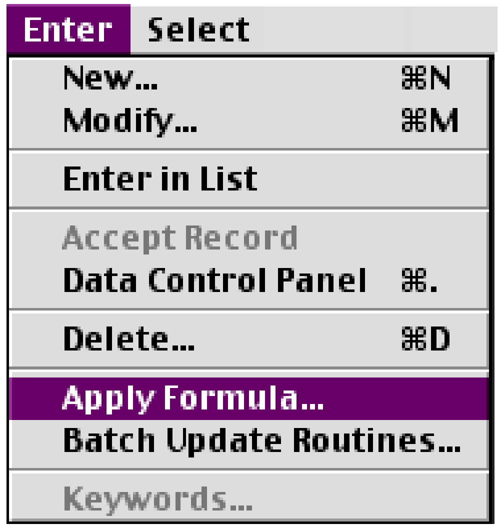
Listing screen for the [Technology] table



Public	Case No.	NTR Title	Date Rec.
☐	SSC-00002	LORAN 'C' RECEIVER MODIFICATION	09/04/1987
☐	SSC-00032	ELECTRONIC THERMOCOUPLE TABLES	08/17/1994
☐	SSC-00003	FUNCTIONAL CHECK MODULE PLUG IN	09/04/1987
☑	SSC-00004	SUPERSEAL BUTTERFLY VALVE Test For Christie	10/05/1987
☐	SSC-00046	MEASURING SYSTEM FOR MEASURING REAL TIME GR	03/21/1997
☐	SSC-00006-1	SMART HYDROGEN SENSOR TECHNOLOGY	05/06/1988
☐	SSC-00008-1	LOW PRESSURE, LOW COST WATER CYLINDER Test	03/16/1989
☑	SSC-00009-1	A COHERENT, EFFICIENT, FLEXIBLE AND FAST SYSTE	03/07/1989
☐	SSC-00010-2	DIGITAL DATA REGISTRATION AND DIFFERENCING CO	03/28/1989
☑	SSC-00045	SPECIAL ARTICLE ON PEBBLE BED HEATER AT HHFF	03/21/1997
☐	SSC-00012-1	X-RAY TUBE COLLIMATOR	01/22/1990
☑	SSC-00013-1	GAMMA RAY COLLIMATOR	01/17/1990
☑	SSC-00014-1	CRYOGENIC PROTECTIVE APPAREL INVESTIGATION	02/22/1990
☑	SSC-00015	AN X-RAY SCATTER APPROACH FOR NONDESTRUCTI	08/10/1990
☐	SSC-00016-1	AN APPROACH USING DIFFUSE REFLECTANCE WITH	02/03/1986
☐	SSC-00017-1	AN AUTOMATED SYSTEM FOR MAINTAINING LABORA	03/25/1991
☐	SSC-00018-1	MORPHOLOGICAL IMAGE REMAPPER	06/27/1991
☐	SSC-00020-1	X-RAY TUBE COLLIMATOR II	08/20/1992
☑	SSC-00021-1	NASA/SSC GAS AND MATERIAL ANALYSIS LABORA	08/18/1992
☐	SSC-00022-1	SSC RADIOGRAPHIC SOURCE MANIUPLATOR	08/20/1992
☐	SSC-00023-1	THICKWALL RADIOGRAPHIC SYSTEM AND TECHNIQUE	09/24/1992
☐	SSC-00024-1	CRYOGENIC VESSEL RECERTIFICATION INTERVALS B	08/26/1992
☑	SSC-00025-1	HYDROGEN FLAME SIMULATOR	08/28/1992

From the menu bar, select **Enter** => **Apply Formula...**

Apply Formula from the Enter menu



Using Apply Formula

When using Apply Formula, it is important to know the various data or field types for the 4D language. Use the NASA TechTracS Data Dictionary for table and field information. To access the Data Dictionary, select **Utilities** => **Data Dictionary...**

The following list shows the proper syntax for the appropriate data types.

Date

Date fields must begin and end with ! if they are explicitly declared.

Examples:

- [People]Last Updated:=!10/05/97!
- [People]Last Updated:=Current Date
- [Contract_Grant]SBI Clause Dat:=[Contract_Grant]Fnl Rep Dt+60

  NOTE: This example changes the SBI Clause date to the final report date and adds 60 days.

Boolean

Boolean fields determine a True or False condition.

Examples:

- [People]NASA Employee:=True

  NOTE: Yes, this is a NASA employee

- [People]NASA Employee:=False

  NOTE: No, this is not a NASA employee

Text or Alpha

Text or Alpha fields begin and end with a double-quote (") if they are explicitly declared.

Examples:

- [People]First Name:= "David"
- [People]Area:= "919"

  NOTE: The ( ) are omitted from the area code. These special characters are entered automatically.

- [People]Phone:= "7909895"

  NOTE: The - (separator) is omitted from the phone number. This special character is also entered automatically.

Longint or Integer

Longint or Integer fields are entered as a number only.

Example:

- [People]Company Code:=808345

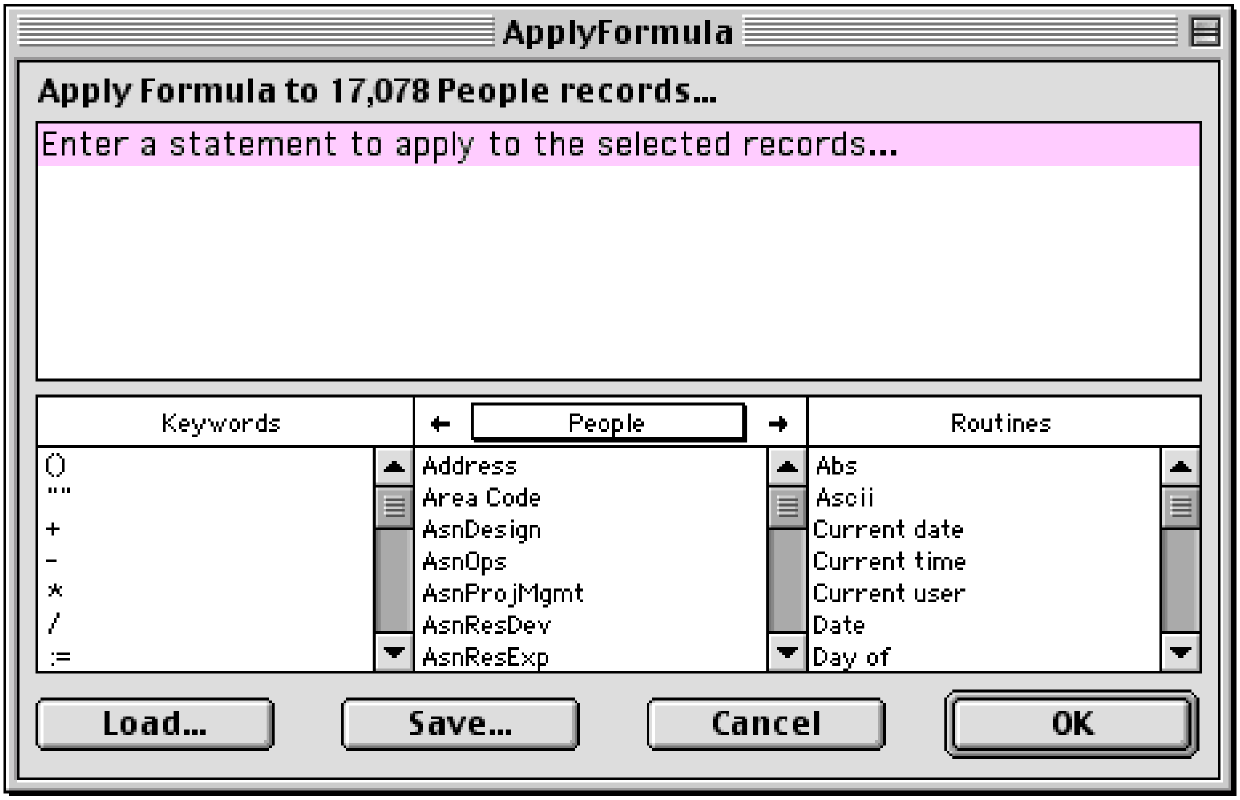
Real

Real fields are fields that carry a decimal place.

Example:

- [Contract_Grant]Total Amount:=1,000,000.50

Apply Formula window



Tutorial

Tutorial # 1 - Change People city (2 Minutes)

1. Select "Query Editor..." from the Query button for the [People] table

2. Locate and click on the [People]City field. Select the comparison "is equal to" and enter the name of a city from your state as the value.

3. Click the *Query* button. Repeat step 2 with another city name if no records are found.

4. From the menu bar, select **Enter** => **Apply Formula...**

5. Enter the following apply formula statement:

   [People]City:="XXXX"

   where XXXX is the name of another city in your state.

6. Click *OK*.

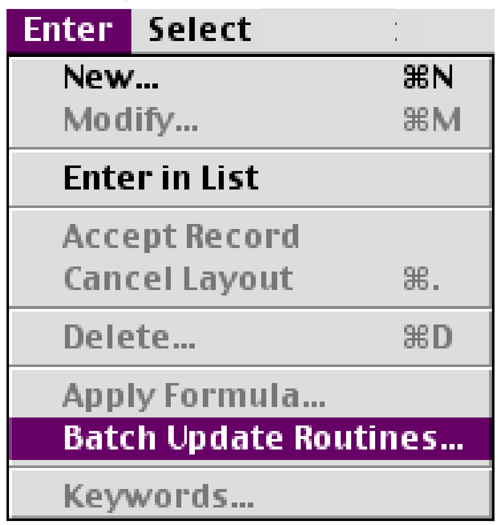
Batch Update Routines

Overview
Batch Update Routines by Table

Overview

This section describes the Batch Update Routines that can be run in NASA TechTracS. We will be looking at the jobs that can be run out of the [Company], [Contract_Grant], [Partnerships], [People], [Reminder Condition], [Reminder Task], [Success Stories], [Technology] and [TOPS] table. Any user except for the "Guest" user can execute a batch update routine.

Batch Update Routine from the Enter menu



Batch Update Routines by Table

Table	Routines
Company	Consolidate Duplicates Create New Keyword...
Contract_Grant	Change COntract Number... Create New Keyword...
List	Make AutoSort for User...
Partnerships	Create New Keyword...
PAT Statistics	Calc Patent Statistics Total Patent Statistics
People	Consolidate Duplicates Create New Keyword... Expertise Entry Batch Email
Reminder Condition	Duplicate...
Reminder Task	Duplicate...
Success Story	Create New Keyword...
Technology	Change Case Number... Create New Keyword...
TOPS	Create New Keyword...

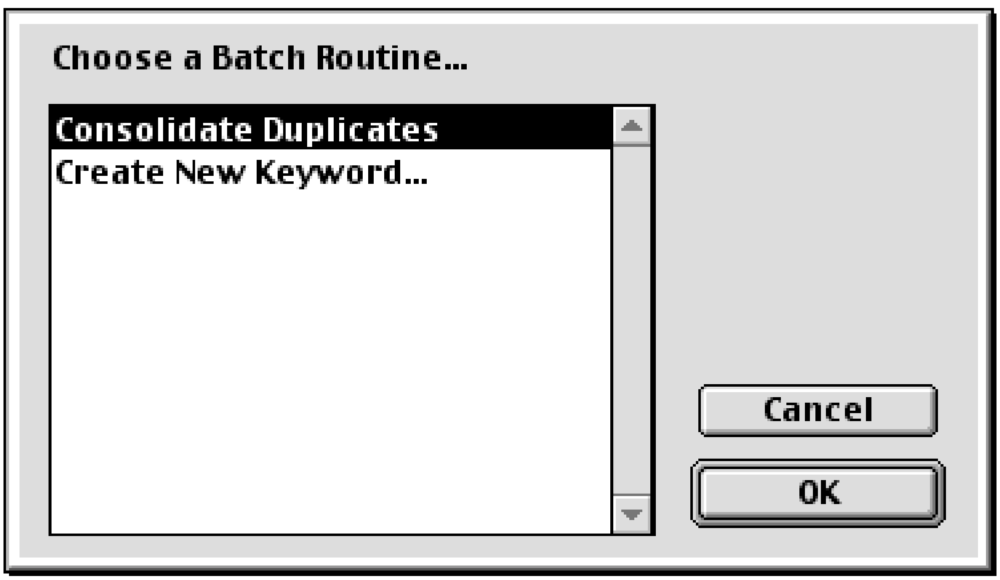
Company

Overview
Consolidate Duplicates
Create New Keyword
Tutorials

Overview

This section covers the two batch update routines that apply to the [Company] table. The two routines are "Consolidate Duplicates" and "Create New Keyword". To run these routines, you will need to be on the list window for the [Company] table.

Batch Update Routine window for the [Company] table



Consolidate Duplicates

This batch routine will allow you to consolidate multiple entries of the same company into one. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the consolidate duplicates batch update routine. The steps in running this job are as follows:

- From the [Company] table list window, get the selection of records that you would like to consolidate into one company.
- Once you have your selection of records, chose the record that will be the one remaining entry by clicking on the record once to highlight it.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Consolidate Duplicates" to select it and then click *OK* . If you wish to cancel the operation, then click *Cancel* and you will be returned to the [Company] list window.
- If you clicked *OK*, you will get a confirmation message asking you if you would like to consolidate the remaining records into the record that you have selected. If you want to perform the consolidation, click *OK*. If you do not want to proceed with the consolidation, then click *Cancel*.
- If you choose to proceed with the consolidation, an entry will be placed on either the Auto Agent or the Personal Agent Queue to perform the consolidation. The placement of the job on the queue depends on how you have your preferences setup.

NOTE **:** If your preference is set to send the job to the Personal Agent Queue, then you must have the queue up and running before the job will run. If you do not have it up, then the job will stay on the queue until the agent is up.

NOTE **:** Only users in the DBA group can perform "Consolidate Duplicates".

Create New Keyword

This batch routine will allow you to enter a keyword for multiple records without having to open up each record that you want the keyword placed in. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the create new keyword batch update routine. The steps in running this job are as follows:

- From the [Company] table list window, get the selection of records that you would like to add a keyword.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines....** A dialog window will then appear with the routine choices that are available for this table.
- From this dialog, click once on "Create New Keyword" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the [Company] list window.
- If you clicked *OK*, a request dialog window will appear prompting you to enter a keyword. Enter the keyword that you wish to add to the selection of records.
- After you have entered the keyword, you can click *OK* to have the keyword entered into each of the records selected or you can click *Cancel* to cancel the operation.

Tutorials

Tutorial #1 - Consolidate Duplicates (5 minutes)
Multiple entries of the same company can be consolidated into one entry very easily by using the "Consolidate Duplicate" batch update routine. In this tutorial, you will consolidate multiple entries of a company into one. Before performing this tutorial, please make sure that you have your Personal Auto Agent up and running.

1. Select [Company] from the Data Control Panel and click *OK* to go to the [Company] list window. If you are already at the [Company] list window, then go to step 2.

2. Use "Quick Find" to search for the company you entered earlier in the List Window function bar Add tutorial.

3. Select one of the two company entries by clicking on the record once until it is highlighted.

4. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

5. Click on the "Consolidate Duplicates" item and then click *OK.*

6. Click *OK,* when the conformation message comes up.

Tutorial #2 - Creating A New Keyword (5 minutes)
Creating a new keyword for multiple records can be made very simple by using the "Create New Keyword" batch update routine. In this tutorial, you will create a keyword for multiple records without having to go into each record and adding the keyword there.

1. Select [Company] from the Data Control Panel and click *OK* to go to the [Company] list window. If you are already at the [Company] list window, then go to step 2.

2. Use "Quick Find" to search for the company you entered earlier in the List Window function bar Add tutorial.

3. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

4. Click on the "Create New Keyword" item and then click *OK*.

5. In the keyword request window, type in "Training" and click *OK*.

6. Double-click on the record to open it in the record window and confirm that the keyword of "Training" is listed as a keyword for this record.

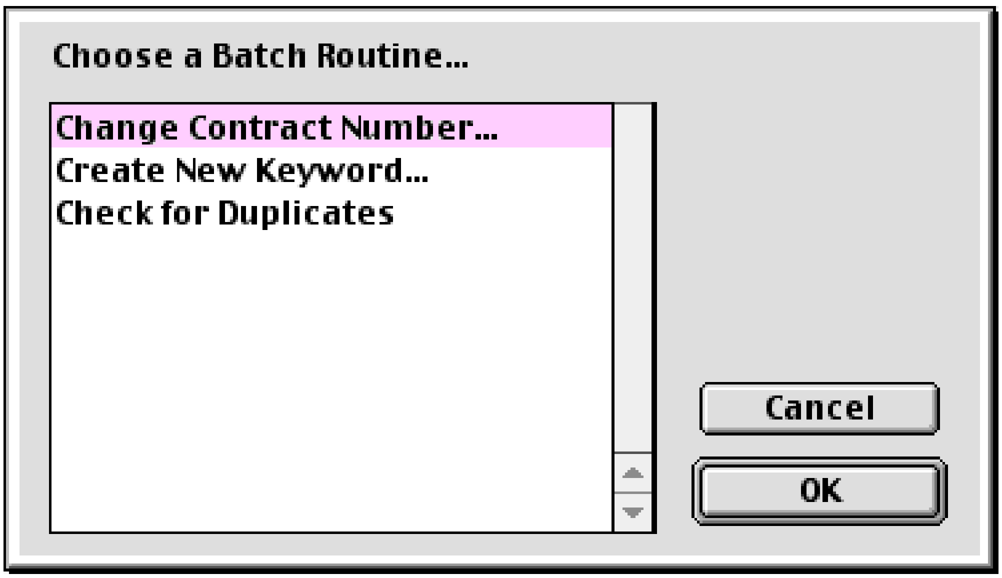
Contract_Grant

Overview
Change Contract Number
Create New Keyword
Tutorial

Overview

This section will cover the two of the three batch update routines that apply to the [Contract_Grant] table. The two routines are "Change Contract Number" and "Create New Keyword". To run these routines, you will need to be on the list window for the [Contract_Grant] table.

Batch Update Routine dialog for the [Contract_Grant] table



Change Contract Number

This batch routine will allow you to change the contract number of a selected record and have that changed propagated throughout the related records of the selected record. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the change contract number batch update routine. The steps in running this job are as follows:

- Select the record whose contract number that you wish to change.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Change Contract Number" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [Contract_Grant] table.
- If you clicked *OK*, you will get a dialog with a prompt to enter the new contract number. Enter the new contract number and then press the Tab key to validate the number that you entered. If the number you entered already exist, then an alert message will appear informing you that the contract number is already in use. If no alert message appeared, then the number is valid and you can then proceed to change it.
- After you have entered a valid contract number, then you can click on the *Change* button to make the change or you can click *Cancel* to abort the change procedure. If you clicked on the *Change* button, a conformation dialog will appear asking you to confirm the change from the old contract number to the new contract number. If you clicked *OK*, then the number will be changed. If you clicked *Cancel*, then the change will be canceled.
- If you choose to proceed with the change, an entry will be placed on either the Auto Agent queue or the Personal Agent Queue to perform the change. The placement of the job on the queue depends on how you have your preferences setup.

NOTE : If your preference is set to send the job to the Personal Agent Queue, then you must have the queue up and running before the job will run. If you do not have it up, then the job will stay on the queue until the agent is up.

Create New Keyword

This batch routine will allow you to enter a keyword for multiple records without having to open up each record that you want the keyword placed in. When running this job you will need to follow the steps listed below.

- From the [Contract_Grant] list window, get the selection of records that you would like to add a keyword.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Create New Keyword" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [Contract_Grant] table.
- If you clicked *OK*, a request dialog will appear prompting you to enter a keyword. Enter the keyword that you wish to add to the selection of records.
- After you have entered the keyword, you can click *OK* to have the keyword entered into each of the records selected or you can click *Cancel* to cancel the operation.

Tutorial

Tutorial # 3 - Change Contract Number (5 minutes)
Changing a contract number and having it changed in related records can be made very simple by using the "Change Contract Number" batch update routine. In this tutorial, you will perform a search for a contract grant record and then change the contract number for that record using the "Change Contract Number" batch update routine. Before performing this tutorial, please make sure that you have your Personal Auto Agent up and running.

1. Add a [Contract_Grant] record "NAS10-mmdd" where mm is month of birth and dd is day of birth.

2. Select [Contract_Grant] from the Data Control Panel and click *OK* to go to the [Contract_Grant] list window. If you are already at the [Contract_Grant] window, then go to step 3.

3. From the **Select** menu, choose **Select** =>**Quick Find**....

4. Type in "NAS10-mmdd" and click *Quick Find*.

5. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

6. Click on the "Change Contract Number" item and then click *OK*.

7. In the ***To*** field, type a new Contract Number and press the TAB key.

8. Click *Change* to change the contract number.

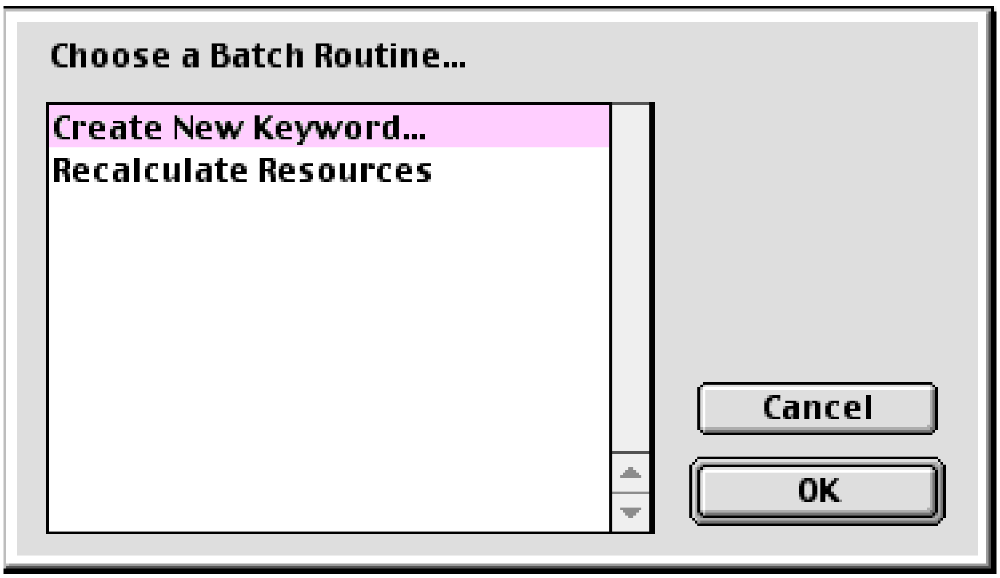
Partnerships

Overview
Create New Keyword

Overview

This section will cover the batch update routine that applies to the [Partnerships] table. To run this routine, you will need to be on the list window for the [Partnerships] table.

Batch Update Routine dialog for the [Partnership] table



Create New Keyword

This batch routine will allow you to enter a keyword for multiple records without having to open up each record that you want the keyword placed in. When running this job you will need to follow the steps listed below.

- From the [Partnerships] list window, get the selection of records that you would like to add a keyword.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Create New Keyword" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the [Partnerships] list window.
- If you clicked *OK*, a request dialog will appear prompting you to enter a keyword. Enter the keyword that you wish to add to the selection of records.
- After you have entered the keyword, you can click *OK* button to have the keyword entered into each of the records selected or you can click *Cancel* to cancel the operation.

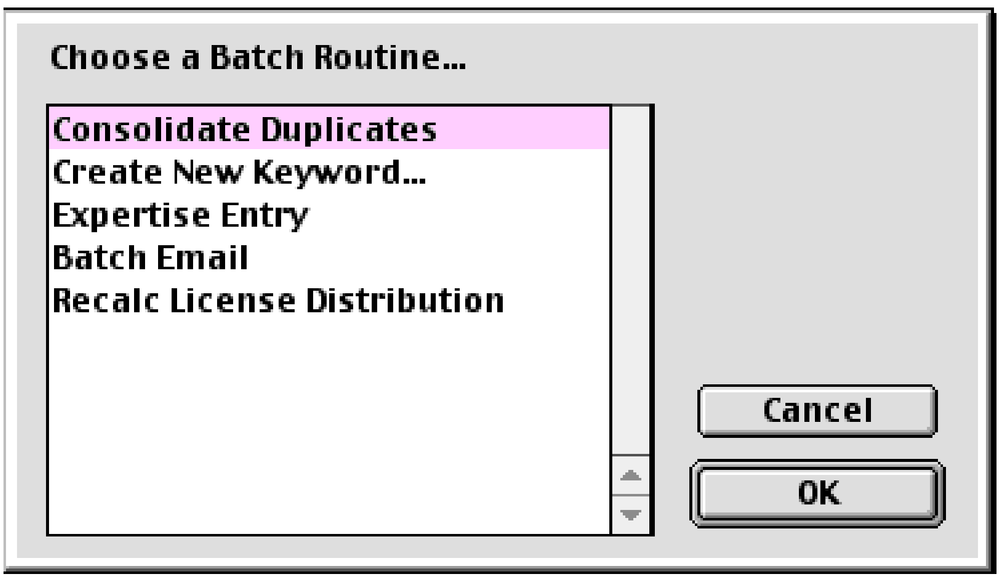
People

Overview
Consolidate Duplicates
Create New Keyword
Expertise Entry
Batch Email
Tutorials

Overview

This section will cover the four of the five batch update routines that apply to the [People] table. The four routines are "Consolidate Duplicates", "Create New Keyword", "Expertise Entry" and "Batch Email". To run these routines, you will need to be on the list window for the [People] table.

Batch Update Routine dialog for the [People] table



Consolidate Duplicates

This batch routine will allow you to consolidate multiple entries of the same person into one. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the consolidate duplicates batch update routine. The steps in running this job are as follows:

- From the [People] list window, get the selection of records that you would like to consolidate into one person.
- Once you have your selection of records, choose the record that will be the one remaining entry by clicking on the record once to highlight it.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Consolidate Duplicates" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [People] table.
- If you clicked *OK*, you will get a confirmation message asking you if you would like to consolidate the remaining records into the record that you have selected. If you want to perform the consolidation, click *OK*. If you do not want to proceed with the consolidation, then click *Cancel*.
- If you choose to proceed with consolidation, an entry will be placed on either the Auto Agent queue or the Personal Agent Queue to perform the consolidation. The placement of the job on the queue depends on how you have your preferences setup.

NOTE : If your preference is set to send the job to the Personal Agent Queue, then you must have the queue up and running before the job will run. If you do not have it up, then the job will stay on the queue until the agent is up.

NOTE : Only users in the DBA group can perform "Consolidate Duplicates".

Create New Keyword

This batch routine will allow you to enter a keyword for multiple records without having to open up each record that you want the keyword placed in. When running this job you will need to follow the steps listed below.

- From the [People] list window, get the selection of records that you would like to add a keyword.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Create New Keyword" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [People] table.
- If you clicked *OK*, a request dialog will appear prompting you to enter a keyword. Enter the keyword that you wish to add to the selection of records.
- After you have entered the keyword, you can click *OK* to have the keyword entered into each of the records selected or you can click *Cancel* to cancel the operation.

Expertise Entry

This batch routine will allow you to create multiple expertise entries or modify the expertise entries for a person without going into the person's record. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the expertise entry batch update routine. The steps in running this job are as follows:

- From the **Enter** menu, select **Enter** => **Batch Update Routines**.. A dialog window will appear where you can enter a person's name and select or deselect the appropriate expertise items.
- Go to the ***Last Name*** field and enter the last name of the person whose expertise records that you wish to modify or create and tab out of the field. After you have jumped out of that field, NASA TechTracS will look for the person(s) who have the same last name as the one you entered. If there is more than one person with the same last name as you entered, then you will be presented with a selection dialog to choose the appropriate person from. If there was only one record found with the same last name, then that person's information will be loaded into the dialog. Once this person's information has been loaded into the dialog, you can then go and make the necessary changes or additions.
- After you have made the necessary changes or additions for the selected person, you can click *OK* to save the expertise information or you can click *Cancel* to clear out the dialog and not save the changes.

- If you clicked *OK* , the information will be saved and the dialog variables will be reset and ready for you to select the next person. If you clicked *Cancel*, then the information will not be saved and the dialog variables will be reset.
- To exit out of the this dialog, click *Cancel* and you will be returned back to the list window of the [People] table.

Batch Email

This batch routine will allow you to create an email message and send it out to multiple people. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the batch email routine. The steps in running this job are as follows:

- From the [People] list window, get the selection of records that you would like to send the batch email.
- Once you have your selection of records, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Batch Email" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [People] table.
- If you clicked *OK*, a dialog will appear. In this dialog you will enter your email address, the subject of the email and the email message itself. The dialog will also contain instruction text, a counter to let you know the number of people your email will be going out to and a popup where you can select a record that already contains the message text. At this point, follow the instructions and fill in the appropriate fields.
- After you have finished filling in the appropriate fields, you can click on the *Send* button to send the email out to the selected people or you can click on the *Cancel* button to cancel the email. If you click on the *Send* button, the email dialog will close and another window will appear informing you of the progress of the email. Once it has told you that the message has been sent, you can then go to the upper right hand corner of the window and click on the window's closed box to get rid of the message window. If you click *Cancel* , the email will not be sent and you will be returned to the list window of the [People] table.

Tutorials

Tutorial #4 - Consolidate [People] Duplicates (5 - 7 minutes)
Multiple entries of the same person can be consolidated into one entry very easily by using the "Consolidate Duplicate" batch update routine. In this tutorial, you will consolidate multiple entries of a person into one. Before performing this tutorial, please make sure that you have your Personal Auto Agent up and running.

1. Select [People] from the Data Control Panel and click *OK* to go to the [People] list window. If you are already at the [People] list window, then go to step 2.

2. Use "Quick Find" to search the [People] table for your name.

3. Select one of the two people entries by clicking on the record once until it is highlighted.

4. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

5. Click on the "Consolidate Duplicates" item and then click *OK*.

6. Click *OK*, when the conformation message comes up.

Tutorial #5 - Expertise Entry (5 - 7 minutes)
Creating multiple expertise records for a person can be made very simple by using the "Expertise Entry" batch update routine. In this tutorial, you will create multiple expertise records without having to go into the record and adding the records there.

1. Select [People] from the Data Control Panel and click *OK* to go to the [People] list window. If you are already at the [People] list window, then go to step 2.

2. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

3. Click on the "Expertise Entry" item and then click *OK*.

4. In the ***Last Name*** field, enter your last name and press the TAB key. If a box appears with a list of people who have the same last name as yourself, then scroll through that list until you have found your name. Once you have found your name, click on it once to select it and then click *Accept*.

5. Click on the following expertise fields: ***Aerodynamics***, ***Botany***, ***Antennas***, ***Logistics***, ***Applied Math***, ***Corrosion*** and ***Acoustics***.

6. Click *OK* to create these entries. After the form has clear itself out, then click *Cancel*.

7. Open your record to confirm that the expertise entries selected were created and are displayed. After you have confirmed that the entries are there, then remove the entries that you selected and click *Accept* to save the changes to your record.

Tutorial #6 - Batch Email (5 - 7 minutes)
Sending out an email message to multiple people can be done by using the "Batch Email" batch update routine. In this tutorial, you will create and email message and send it out multiple people.

1. Select [People] from the Data Control Panel and click *OK* to go to the [People] list window. If you are already at the [People] list window, then go to step 2.

2. Use "Quick Find" to search for your name in the [People] table.

3. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

4. Click on the "Batch Email" item and then click *OK*.

5. If not already entered, type in your full email address in the ***Your Email Address*** field.

6. In the Subject field, type in "Tutorial #6 - Batch Email".

7. In the Body field, type in "This is a test of the Batch Email routine."

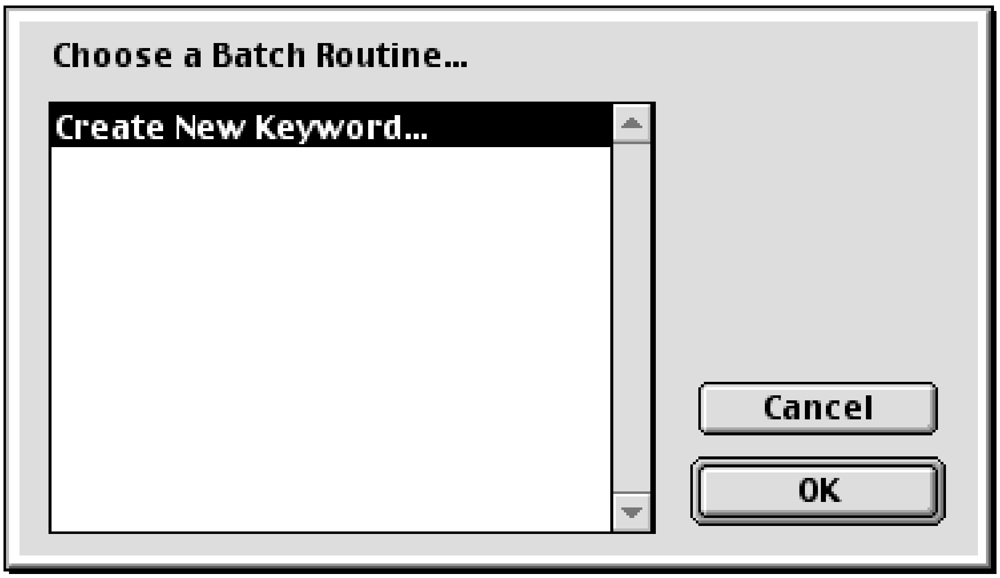
8. Click *Send* to send your email message to yourself.

Success Stories

Overview
Create New Keyword

Overview
This section will cover the batch update routine that applies to the [Success Stories] table. To run this routine, you will need to be on the list window for the [Success Stories] table.

Batch Update Routine dialog for the [Success Story] table



Create New Keyword

This batch routine will allow you to enter a keyword for multiple records without having to open up each record that you want the keyword placed in. When running this job you will need to follow the steps listed below.

- From the [Success Stories] table list window, get the selection of records that you would like to add a keyword.
- After you have made your selection, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Create New Keyword" to select it and then click *OK* . If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [Success Stories] table.
- If you clicked *OK*, a request dialog will appear prompting you to enter a keyword. Enter the keyword that you wish to add to the selection of records.
- After you have entered the keyword, you can click *OK* to have the keyword entered into each of the records selected or you can click *Cancel* to cancel the operation.

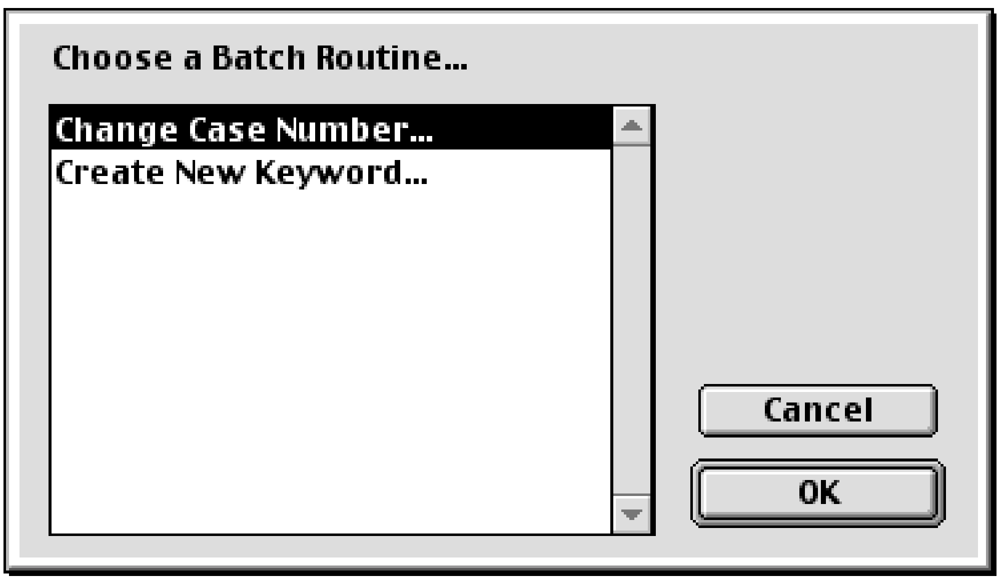
Technology

Overview
Change Case Number
Create New Keyword
Tutorial

Overview

This section will cover the two batch update routines that apply to the [Technology] table. The two routines are "Change Case Number" and "Create New Keyword". To run these routines, you will need to be on the list window for the [Technology] table.

Batch Update Routine for the [Technology] table



Change Case Number

This batch routine will allow you to change the case number of a selected record and have that change propagated throughout the related records of the selected record. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the change case number batch update routine. The steps in running this job are as follows:

- Select the record whose case number that you wish to change.
- After you have made your selection, go to the **Enter** menu and select **Enter** =>**Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Change Case Number" to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [Technology] table.
- If you clicked *OK* , you will get a dialog with a prompt to enter the new case number. Enter the new case number and then press the TAB key to validate the number that you entered. If the number you entered already exists, then an alert message will appear informing you that the case number is already in use. If no alert message appeared, then the number is valid and you can then proceed to change it.
- After you have entered a valid case number, then you can click *Change* to make the change or you can click *Cancel* to abort the change procedure. If you clicked *Change*, a conformation dialog will appear asking you to confirm the change from the old case number to the new case number. If you click *OK*, then the number will be changed. If you clicked *Cancel*, then the change will be canceled.
- If you choose to proceed with change, an entry will be placed on either the Auto Agent queue or the Personal Agent Queue to perform the change. The placement of the job on the queue depends on how you have your preferences setup.

NOTE : If your preference is set to send the job to the Personal Agent Queue, then you must have the queue up and running before the job will run. If you do not have it up, then the job will stay on the queue until the agent is up.

Create New Keyword

This batch routine will allow you to enter a keyword for multiple records without having to open up each record that you want the keyword placed in. When running this job you will need to follow the steps listed below.

- From the [Technology] table list window, get the selection of records that you would like to add a keyword.
- After you have made your selection, go to the **Enter** menu and select **Enter** =>**Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Create New Keyword" to select it and then click on the *OK* button. If you wish to cancel the operation, then click *Cancel* and you will be returned to the list window of the [Technology] table.
- If you clicked *OK*, a request dialog will appear prompting you to enter a keyword. Enter the keyword that you wish to add to the selection of records.
- After you have entered the keyword, you can click *OK* to have the keyword entered into each of the records selected or you can click *Cancel* to cancel the operation.

Tutorials

Tutorial # 7 - Change Case Number (5 minutes)

Changing a case number and having it changed in related records can be made very simple by using the "Change Case Number" batch update routine. In this tutorial, you will perform a search for a technology record and then change the case number for that record using the "Change Case Number" batch update routine. Before performing this tutorial, please make sure that you have your Personal Auto Agent up and running.

1. Add a new [Technology] record with the case number prefix of your site + "-" + mmdd (ie. "KSC-1127"). Make sure you enter the required fields: Reported as and NTR Received date.

2. Accept the [Technology] record.

3. Select [Technology] from the Data Control Panel and click *OK* to go to the [Technology] list window. If you are already at the [Technology] list window, then go to step 3.

4. From the **Select** menu, choose **Select** => **Quick Find**....

5. Type in case number of the [Technology] record added in Step 1 and click *Quick Find*.

6. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

7. Click on the "Change Case Number" item and then click *OK*.

8. In the ***To*** field, type in the same case number of the [Technology] record added in Step 1 and add "-1" (ie "KSC-1127-1").

9. Press the TAB key.

10. Click on *Change* to change the case number.

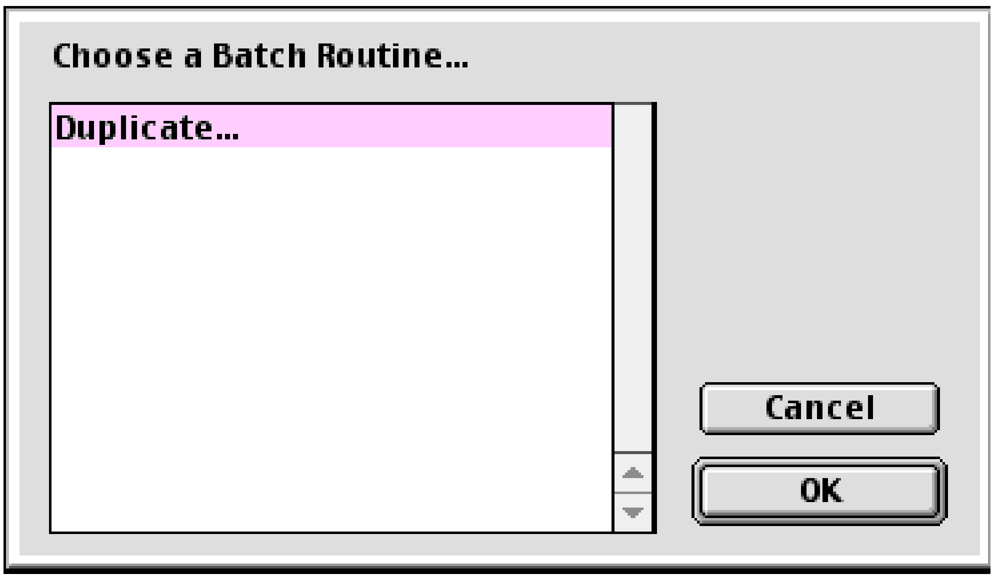
Reminder Task

Overview
Duplicating A Reminder Task
Tutorials

Overview

This section covers the batch update routine that applies to the [Reminder Task] table. To run this routine, you will need to be on the list window for the [Reminder Task] table.

Batch Update Routine window for the [Reminder Task] table



Duplicating A Reminder Task

This batch routine will allow the user to duplicate a selected reminder task along with its related task items. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the duplicate batch update routine. The steps in running this job are as follows:

- From the [Reminder Task] table list window, select the task to be duplicated.
- After the record has been selected, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Duplicate..." to select it and then click *OK* . If you wish to cancel the operation, then click *Cancel* and you will be returned to the [Reminder Task] list window.
- If the user clicked *OK*, the system will proceed with the duplication. After the system has duplicated the record and its assoicated task, the list window for the [Reminder Task] table will be updated to show only the new duplicated record.

Tutorials

Tutorial #8 - Duplicating A Reminder Task (5 minutes)
A reminder task and its related task items can be duplicated very easily by using the "Duplicate..." batch update routine. In this tutorial, you will duplcate a reminder task and its related elements using the batch update routine.

1. Select [Reminder Task] from the Data Control Panel and click *OK* to go to the [Reminder Task] list window. If you are already at the [Reminder Task] list window, then go to step 2.

2. Execute the show all records command to list all of the records in the [Reminder Task] table.

3. From the records shown, select a reminder task record for duplication by clicking on the record once until it is highlighted.

4. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

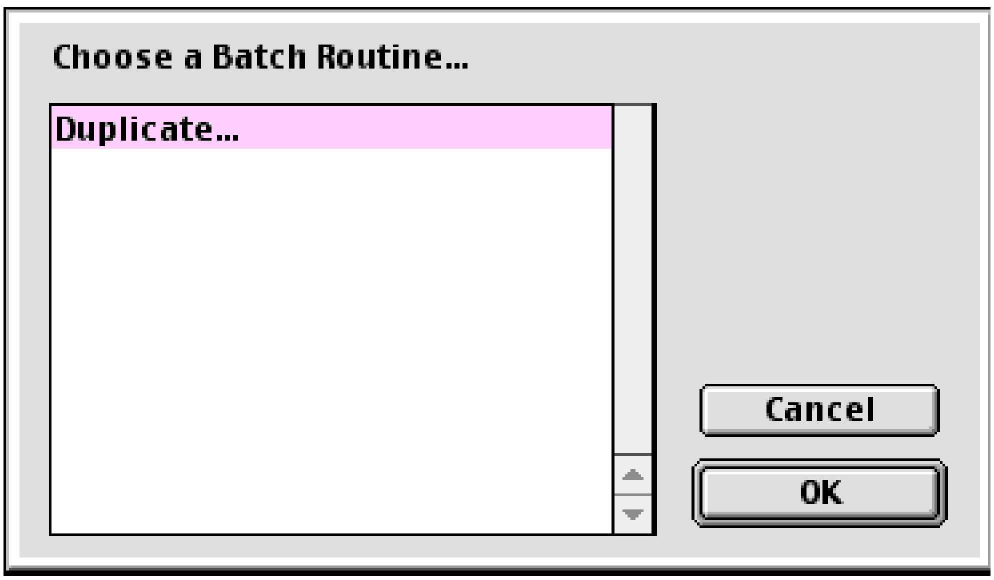
5. Click on the "Duplicate..." item and then click *OK*.

Reminder Condition

Overview

This section covers the batch update routine that applies to the [Reminder Condition] table. To run this routine, you will need to be on the list window for the [Reminder Condition] table.

Batch Update Routine window for the [Reminder Condition] table



Duplicating A Reminder Condition

This batch routine will allow the user to duplicate a selected reminder condition along with its related condition items. When running this job you will need to follow the steps listed below. Later on in this section, there will be a tutorial that will walk you through using the duplicate batch update routine. The steps in running this job are as follows:

- From the [Reminder Condition] table list window, select the condition to be duplicated.
- After the record has been selected, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Duplicate..." to select it and then click *OK* . If you wish to cancel the operation, then click *Cancel* and you will be returned to the [Reminder Condition] list window.
- If the user clicked *OK*, the system will proceed with the duplication. After the system has duplicated the record and its assoicated condition items, the list window for the [Reminder Condition] table will be updated to show only the new duplicated record.

Tutorials

Tutorial #9 - Duplicating A Reminder Condition (5 minutes)
A reminder condition and its related condition items can be duplicated very easily by using the "Duplicate..." batch update routine. In this tutorial, you will duplcate a reminder condition and its related elements using the batch update routine.

1. Select [Reminder Condition] from the Data Control Panel and click *OK* to go to the [Reminder Condition] list window. If you are already at the [Reminder Condition] list window, then go to step 2.

2. Execute the show all records command to list all of the records in the [Reminder Condition] table.

3. From the records shown, select a reminder condition record for duplication by clicking on the record once until it is highlighted.

4. From the **Enter** menu, select **Enter** => **Batch Update Routines**....

5. Click on the "Duplicate..." item and then click *OK*.

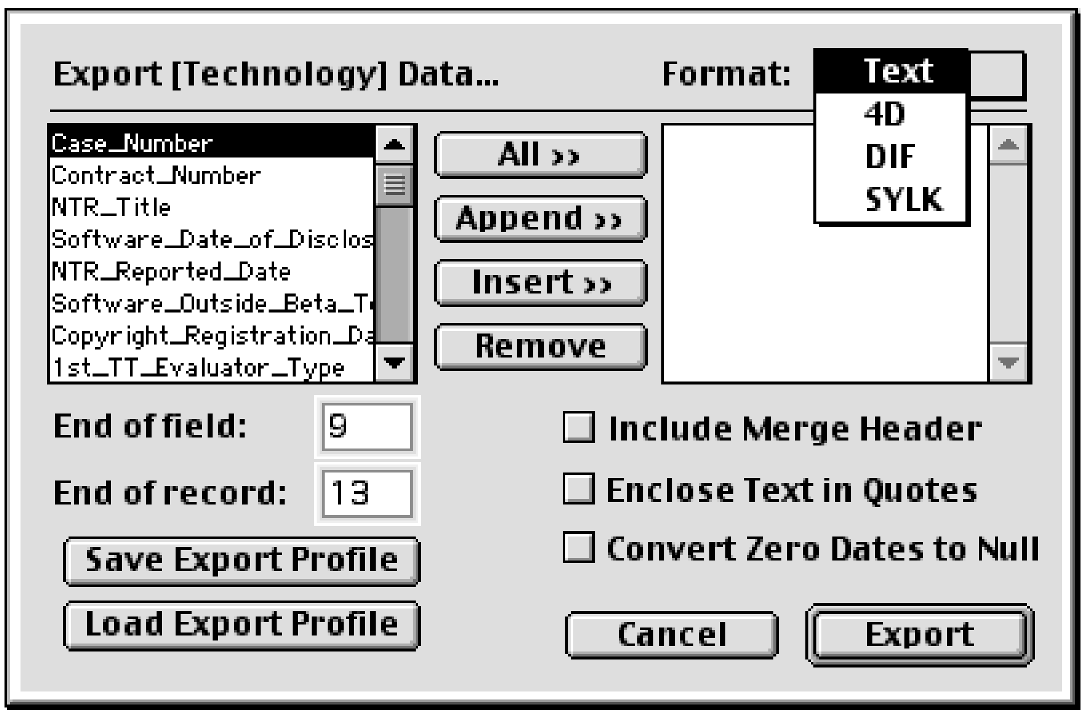
Export

File Format
Invoking the Export Facility
Precautions to Consider
Tutorial

Overview

The 4D exporting capability is a fast and reliable way to transfer data for use in other software applications. A user must be in DBA group of the password system in order to access this capability.

Export dialog for the [Technology] table



File Format

Data is usually exported in one of two formats; "Text" and "4D".

4D: This format is strictly reserved to 4D users that will import exported data into another 4D database.

Text: This format separates fields within a record by the end-of-field delimiter and records by the end-of record delimiter. The default field and record delimiters are the Tab and the Carriage Return, respectively.

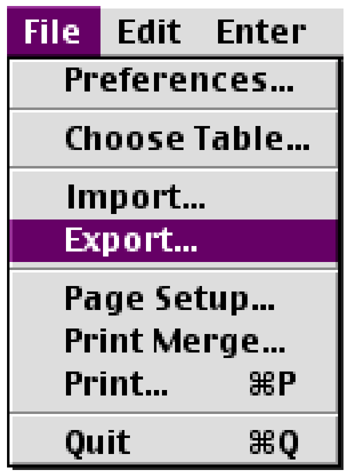
Invoking the Export Facility

1. Select the table from which to export records.

2. In the List window, create a selection of records to export and sort them, if desired.

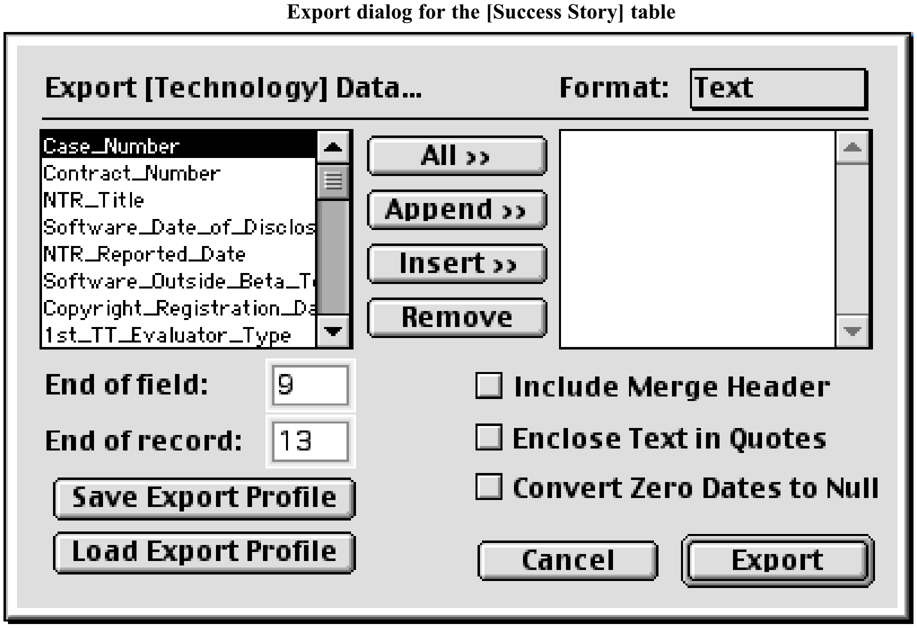
3. From the File menu, select **File => Export...**

Export from the File menu



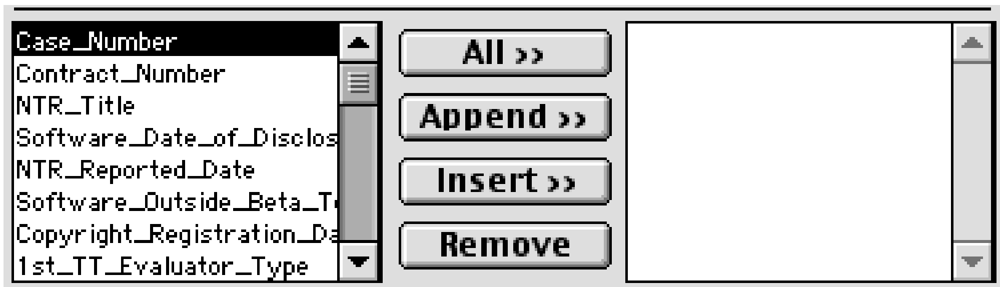
4. The Export dialog window is displayed.

Export dialog for the [Success Story] table



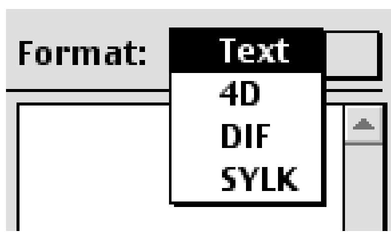
5. A complete list of the fields are available in the left column and the right column presents the ones chosen. Using the list on the left, select the fields to be exported. Use the first three centered buttons to move the selected fields from the left list to the right list. Use the *Remove* button to remove fields from the right list

Fields to Export area



6. From the Format pull-down menu located in the upper right corner of the window, select which format to use for the export.

Format Pulldown



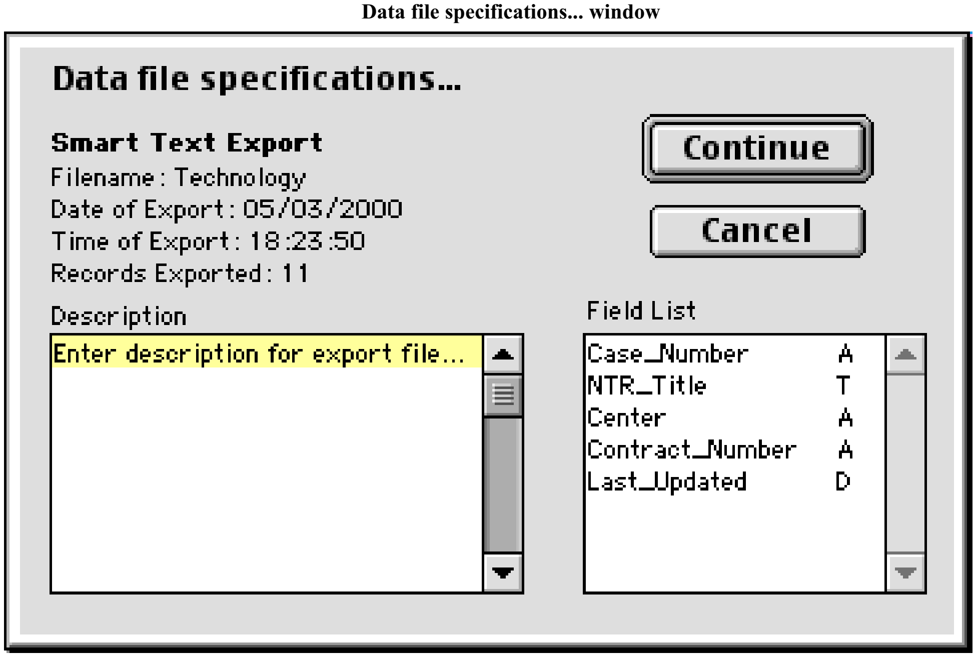
7. It is recommended to use the default values (9 and 13) for the "end of field" and "end of record" option. End-of-field delimiters are placed between fields in a record and the end-of-record delimiter is placed after each record. Field and record delimiters are used only when using the Text format. By default, 4th Dimension uses the Tab character (ASCII code 09) as the field delimiter and the Return character (ASCII code 13) as the record delimiter. Most Macintosh and Windows applications also use these characters.The default delimiters can be used when importing or exporting data.

"End of field" and "End of record" options

<u>TIP:</u> If the data you are exporting is likely to have carriage returns, use Line Feed (ASCII code 10) as the record delimiter.

8. Click the *Export* button. A new dialog window entitled "Data file specifications..." will appear. This dialog will give a quick summary of the export. If desired, a description can be entered in the description pane. This, and the other information is included at the beginning of the exported file to aid in it's use elsewhere.

Data file specifications... window



9. Click the *Continue* button once, export options are validated as correct.

10. Another dialog window will be displayed to prompt for the file name and location of the export file. Click the *Save* button.

Precautions to Consider

The use of this function is reserved for the database administrator.

It is important to know in advance what will be the final utility of the exported file. The use of duplicate copies are encouraged to prevent any kind of data corruption or loss of the exported file.

If the data to be exported includes a text field, it is important to understand that data from these fields may contain carriage returns. If they do, it may affect the usefulness of the file when it is later used. If there is a possibility of the presence of carriage returns, a different record delimiter should be used (e.g. ASCII 10).

Tutorials

Tutorial # 1 - Exporting (5 minutes)
Create an electronic list of all Technologies reported in the last 12 months, sorted by date received from newest to oldest.

1. Select the [Technology] table from the Data Control Panel.

2. Click on the *Query* button.

3. Click *OK*.

4. Select the Query Editor.

5. Query the [Technology] table where the [Technology]NTR Received Date field is greater than or equal to a date 12 months ago.

6. Click on the *Order by* Icon at the bottom of the listing screen. Select the [Technology]NTR Received Date field and reverse the direction of the triangle.

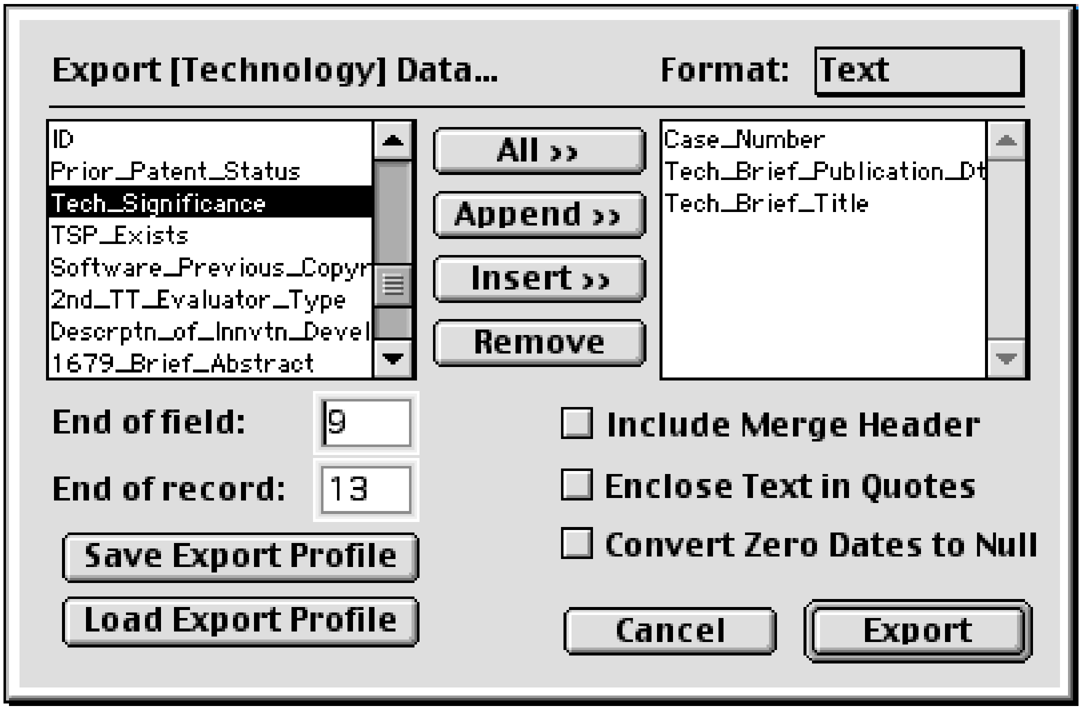
7. From the File menu, select **File =>Export...**

8. Locate the [Technology]Case Number field and click *Append*.

9. Locate the [Technology]Tech Brief Publication Dt field and click *Append*.

10. Locate the [Technology]Tech Brief Title field and click *Append*.

[Technology] table Export



10. Click the *Export* button.

11. Click the *Continue* button.

12. Enter file name "TechExport."

13. Click *Save*.

Introduction

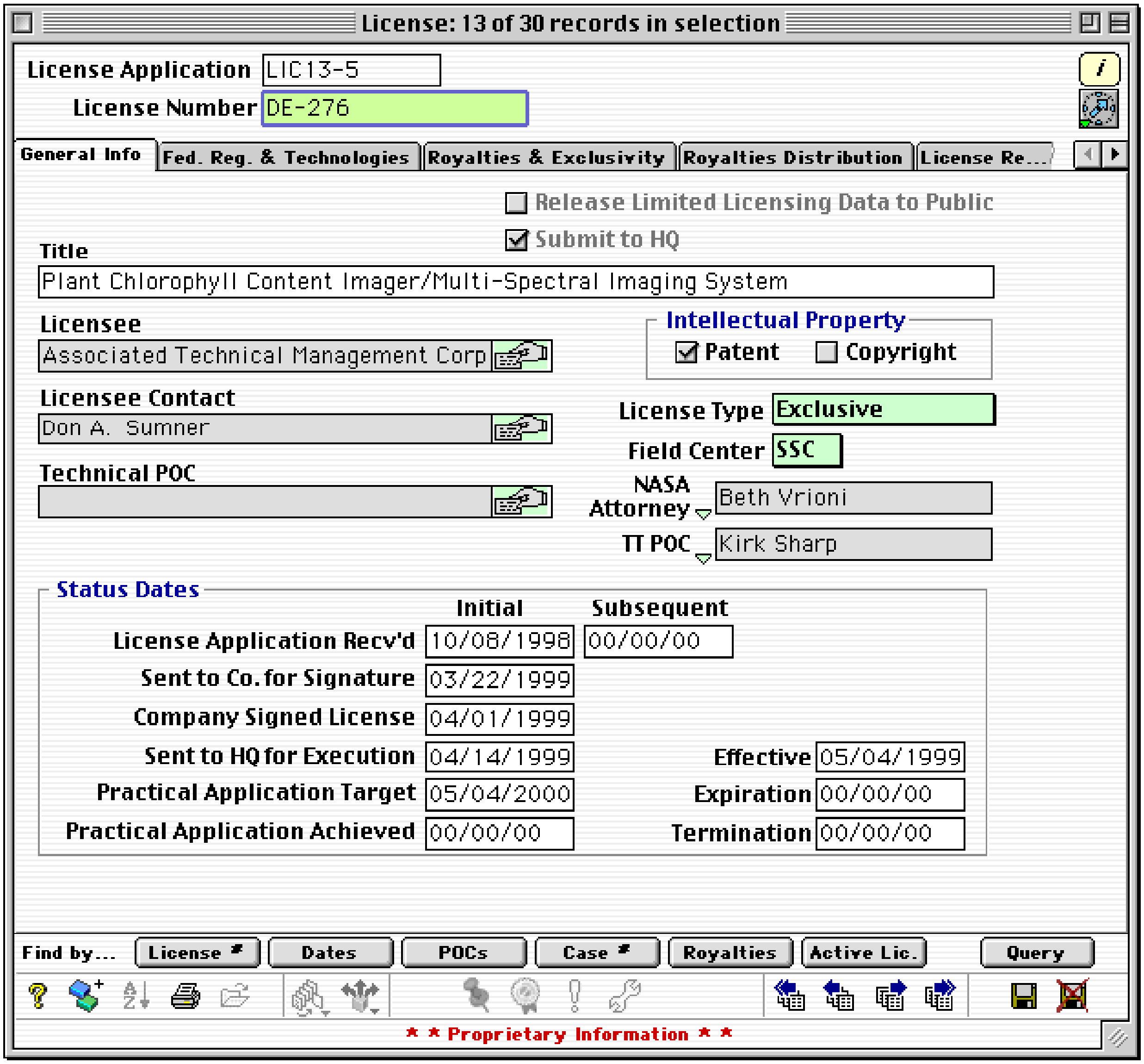
Overview
Header
Footer

This section will describe the various buttons, objects and menu items that are available to the user from the *Record Window*. See the NASA TechTracS Support Website for the most current descriptions of the *Record Window*.

Overview

When a record is retrieved from the *List Screen* for editing it appears in the *Record Screen* in the same window replacing the list of records. All tables in NASA TechTracS exhibit similar interface features in the *Record Screen*.

A record from the License table

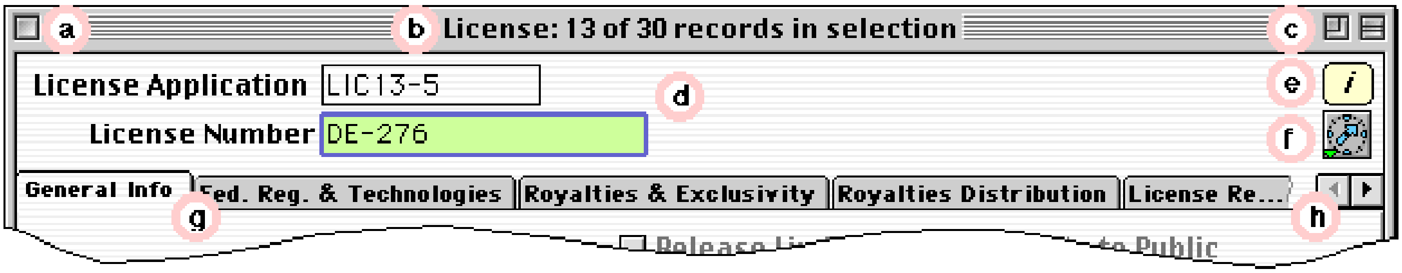


Most table specific information appears in the central portion of the window and is substantially similar to the content of the *Record Screen* in earlier versions of NASA TechTracS. Some minor adjustments have been made to make better use of the available space but future releases of NASA TechTracS will take advantage of this additional screen real estate. In particular many text fields have been adjusted so that they grow when the window is enlarged. Both the upper (header) and lower (footer) portions of the window have important features. Each section is discussed below.

Header

There are several areas that make up the header of the *Record Screen*:

Areas of the Record Screen Header section

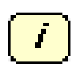


a. The record can be dismissed by clicking the Close Box. Note: This is the equivalence of clicking the **Cancel Record** button and will discard any changes to the record. The previous *List Screen* will reappear.

b. The window title consists of the table name, the selected record number of the current selection, and the number of records in the current selection. If you do not have read-write access to the table, the words [read only] will appear in the window title.

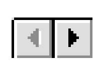
c. Windows can be repositioned and resized using the normal window controls. The size and position if the window is preserved for each table. When that table is reopened the previous size and position of the window is restored.

d. The Identification Area is normally used to provide information about the record that helps to identify the record. This information will appear on every page of the Record Screen.

e. Some tables have an **Information**  button that, when clicked, displays a window with details about the record's ID and creation and modification information.

f. All tables have a **Page Navigation Popup** . The popup shows a menu where each item represents a specific page in the record. Selecting an item causes the Record Screen to display the data on that page for the current record. This is the same function as the **More... Popup** in earlier versions of NASA TechTracS.

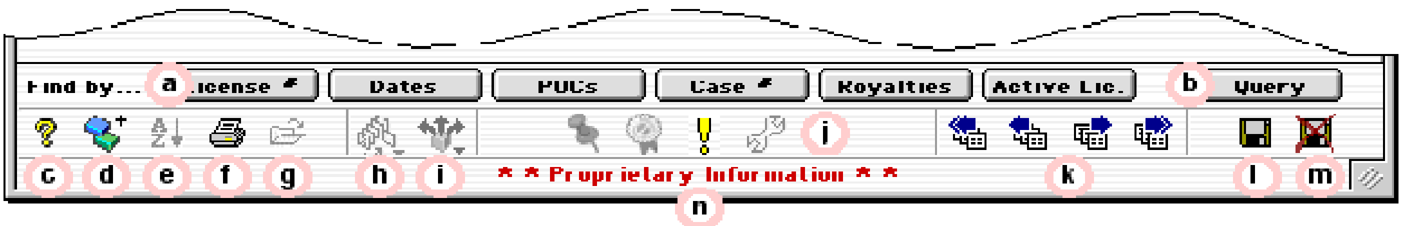
g. All tables also have a **Page Navigation Tab** that contains one tab for each page in the record. The tab also serves to identify the page currently being viewed. Clicking any tab causes the Record Screen to display the data on that page for the current record.

h. If the window is too narrow to display all the available tabs, **Tab Scroll**  buttons appear allowing other tabs to be scrolled into view.

Footer

There are several areas that make up the footer of the *List Screen*:

Areas of the List Screen Footer section

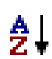


a. Some tables have a Find feature (also accessible by selecting **Find** from the **Select** menu (command-F)). When clicked, the buttons in the footer of the Record Screen (if present) will open the Find Dialog at the page indicated by the name of the button, from where the user can conduct predefined queries.

b. All Record Screens sport the **Query** button which invokes the standard 4th Dimension *Query Editor*. This can also be done by selecting **Query Editor...** from the **Select** menu (command-E).

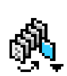
c. The **Help**  button opens the user's web browser to the NASA TechTracS support site.

d. The **New Record**  creates a new empty record for the table. This can also be done by selecting **New...** from the **Enter** menu (command-N).

e. The **Order By**  button is disabled in the *Record Screen*.

f. The **Print**  button opens the normal NASA TechTracS *Print Dialog*. This can also be done by selecting **Print...** from the **File** menu (command-P).

g. The **Quick Report**  button is disabled in the *Record Screen*.

h. The **Sets Popup**  is disabled in the *Record Screen*.

i.The **Relates Popup**  is disabled in the *Record Screen*.

j. The *Jump Icon* area is used by some tables to indicate special conditions in the current record. If the table does not support Jump Icons this area is empty. The icons used vary from table to table and signify different conditions. Generally, when the condition represented by the icon is not true for the current record, the icon appears dim or gray. When the condition is true the icon appears in color. Clicking this icon causes the Record Screen to display the data on the page that contains the relevant information.

   In the sample above, the **Alert** jump icon indicates that there are License Milestones for this record.

k. The record navigate buttons: **First Record**, **Previous Record**, **Next Record**, and **Last Record** can be used to move among the records in the current selection. Collectively these four buttons perform the same function as the Record... popup in earlier versions of NASA TechTracS.

l. The **Accept Record** button closes the record and returns to the List Screen saving any changes to the record.

m. The **Cancel Record** button closes the record and returns to the List Screen without saving any changes to the record.

n. The *Record Message* area is used by some tables to provide additional information about the record to the user. If there is no message, this area appears empty otherwise the area contains a textual message relevant to the current record. Depending on the importance of the message the text may appear in **black**, or in **red**, or in **red and blinking**.

Button Bar

Overview

The button bar can be found at the bottom of all Record windows found within NASA TechTracS. In the text below you will find a description of each of the active buttons contained on this bar.

Button bar from the Record window

Help Button 

The purpose of the *Help* button is to bring up the online help system for NASA TechTracS. When you move the mouse over the button a "tip" window will appear that will contain some help text on the button. When you Option-click or Alt-click on the button, a dialog box will appear with the Data Dictionary for the table you are currently in front where you can select the field you would like help on. When you click on *Done* button, the window will go away and you will be taken to the NASA TechTracS data structure window where you can navigate through the other tables that are related to the table you are currently in.

New Record Button 

The purpose of the *New Record* button is to create a new empty record for the table. This can also be done by selecting **New...** from the **Enter** menu.

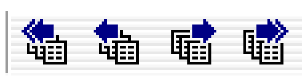
TIP: You can activate the *New Record* button by pressing the "CMD + N" keys on the Mac or by pressing the "Ctrl + N" keys on Windows.

Print Button 

The purpose of the *Print* button is to print a record in the specified format. When you move the mouse over the button a "tip" window will appear that will contain some help text on the button. When you click on the button, a dialog box will appear giving you a choice for the type of print layout that you would like to use.

TIP: You can activate the *Print* button by pressing the "CMD + P" keys on the Mac or by pressing the "Ctrl + P" keys on Windows.

PREF: On the Preference dialog the Hold print jobs check box will affect the action of the *Print* button. If the box is checked, then when you go to print, the print job will then be put on the hold queue until you go into the queue manager and perform an action on the job.

Record Navigate buttons 

The record buttons are "First Record", "Previous Record", "Next Record" or "Last Record". The purpose of the *Record* buttons is to allow the user to navigate through records relative to the current record. When you move the mouse over a button a "tip" window will appear that will contain help text on the popup. When you click on a button, you will then be taken to the record that is in the direction that you have selected.

TIP: You can also use the following keyboard shortcuts to move between records:

Previous Record: "Ctrl + Left Arrow" on Windows.
"Cmd + Left Arrow" on the Mac

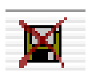
Next Record: "Ctrl + Right Arrow" on Windows.
"Cmd + Right Arrow" on the Mac.

Accept Button 

The purpose of the *Accept* button is to accept the current record and saves any changes. When you move the mouse over the button a "tip" window will appear that will contain some help text on the button. When you click on the button the record is saved, the data screen disappears, and you are returned to where you came from.

TIP: You can activate the *Accept* button by pressing the ENTER key.

PREF: On the Preference dialog the Confirm Saves check box will affect the action of the *Accept* button. If the box is checked, then when you have made a change to the record that you are currently in and use the Record popup to go to another record, a dialog box will appear asking you if you would like to save the changes that you made. If the box is not checked, then when you use the Record popup to go to another record, any changes that were made will automatically be saved and you will be taken to the other record without getting the prompt.

Cancel Button 

The purpose of the *Cancel* button is to cancel the Record Window without saving any changes. When you move the mouse over the button a "tip" window will appear that will contain some help text on the button. When you click on the button the data screen disappears, and you are returned to where you came from.

TIP: You can activate the *Cancel* button by pressing the "CMD + ." keys on the Mac or by pressing the "Ctrl + ." keys on Windows.

PREF: On the Preference dialog the Confirm before cancel check box will affect the action of the *Cancel* button. If the box is checked, then when you have made a change to the record that you are currently in and use the *Cancel* button to exit out of the record, a dialog box will appear asking you if you would like to discard the changes that you have made. If the box is not checked, then when you click on the *Cancel* button to exit out of the record, you will not be prompted about discarding the changes made and you will exit out of the record without any changes being saved.

Other Items on the Button Bar

This section will cover other non-standard items on the button bar that are unique to certain input forms.

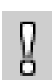
Comments Button

The *Comments* button is represented by a blue thumbtack icon. This icon will appear on the button bar of the [License] record window if there have been comments received regarding the License. Clicking on this button will take the you to the Chronology/Milestones page to view the relevant descriptions of these actions.

Licensing Button

The *Licensing* button is represented by a yellow seal icon. This icon will appear on the button bar of the [Technology] *P* record window to indicate there are 1 or more [License] records related to the [Technology]. Clicking on the icon will bring up the [License] record(s) in a new data window.

Milestones Button



The *Milestones* button is represented by an exclamation point icon. This icon will appear on the button bar of the [License] record window if there are milestones to be viewed. Clicking on this button will take the you to the Chronology/Milestones page to view the relevant descriptions of these actions.

Modified Button

The *Modified* button is represented by a wrench icon. This icon will appear on the button bar of the [License] record window if there have been modifications to the license. Clicking on this button will take the you to the Chronology/Milestones page to view the relevant descriptions of these actions.

Outside Preparation Button

The *Outside Preparation* button is represented by a face icon. This icon will appear on the button bar of the [Technology] *P* record window to indicate there are 1 or more related [Outside Patent Preparation] records to the [Technology] record. Clicking on the icon will switch to the "Outside Preparation" screen.

Publication Button

The *Publication* button is represented by a book icon. This icon will appear on the button bar of the [Technology] *P* record window to indicate there are 1 or more [Publication] records related to the [Technology] record. Clicking on the icon will switch to the "Releases/Publications/Images" screen.

Sublicense Button

The Sublicense button is represented by a yellow seal icon. This icon will appear on the button bar of the [License] record window if there have been sublicensing royalties applied to the license. Clicking on this button will take the you to the Chronology/Milestones page to view the relevant descriptions of these actions.

Color Codes

Overview

This section will describe the different color codes that are used with the buttons, objects, variables and fields found on the Input Window .

White Background

Any objects, fields or variables that are shown in black on a white background are denoted as enterable. Data can be entered into one of these object, field or variable by first clicking on it or by tabbing to it, and then entering characters from the keyboard. The only exceptions to this, are fields that are contained within Included Forms or when the input form is in a "READ ONLY" mode.

NOTE: A "READ ONLY" mode can occur if your access only allows you to view the data without making any changes or if another user is modifying the same record.

Gray Background

Any objects, fields or variables that are shown in black on a gray background are denoted as non-enterable. This means that data cannot be entered into one of these object, field or variables.

Green Backgrounds

Buttons or other objects shown in black with a green background will cause an event, typically opening a window, to take place. Selecting data at this point will place that information into the associated field. Some non-enterable field labels will have a green background to indicate that there is a window selection to be made in order to fill the data field.

Blue Buttons

Buttons or other objects shown in black with a blue background will cause a secondary data window to be opened.

Record Window Objects & Buttons

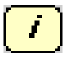
Overview

This section describes the various objects and buttons that are used on the Input Windows throughout the NASA TechTracS system. The objects and buttons that are used on each input form vary depending on the function required.

Associated Help Button

The purpose of the Associated Help button is to display the help information for the field or object that the button is associated with. When you click on the button, a dialog box will appear displaying a window with information related to the field to which it refers.

Information Button



The purpose of the *Information* button is to display record information for the current record. When you click on the button, a dialog box will appear displaying a window with information about when the record was added, when it was last modified, and the record ID. It will also display the user who created the record and the user who last modified the record. This button is found in the Header of the *Record Screen*.

TIP: The record ID is used as a unique identifier and is typically not shown on the screens of the record window. It is used to relate one table to another.

Page Navigation Popup

The purpose of the ***Page Navigation popup*** is to allow the user to access additional information for the current record. When you move the mouse over the popup a "tip" window will appear that will contain some help text on the popup. When you click on the button a popup list will appear with your choices of the additional information that you can look at about the record. The choices for each popup will be different. After you have selected a choice, the view will change to the specified screen. This popup is found in the Header of the *Record Screen*.

TIP: You can also use the following keyboard shortcuts to move between form pages;

Previous Page: "Ctrl + Up Arrow" on Windows.
"Cmd + Up Arrow" on the Mac.

Next Page: "Ctrl + Down Arrow" on Windows.
"Cmd + Down Arrow" on the Mac.

Radio Button

A *Radio button* allows the user to choose one option among two or more (mutually exclusive action). When you click on a *radio button*, the button you clicked on is selected and all other associated *radio buttons* are deselected. If the *radio button* you clicked on was already selected, then there is no change.

Check Box

A *Check Box* allows the user to toggle an option (not mutually exclusive action). If the box is unchecked when you click on it, it will then mark the box with a check to indicate that you have selected it. If the box is checked when you click on it, it will then unmark the box to indicate that it has not been selected.

> NOTE: Some checkboxes, such as those in list screen views, are not interactive with the user.

Enterable Text Box

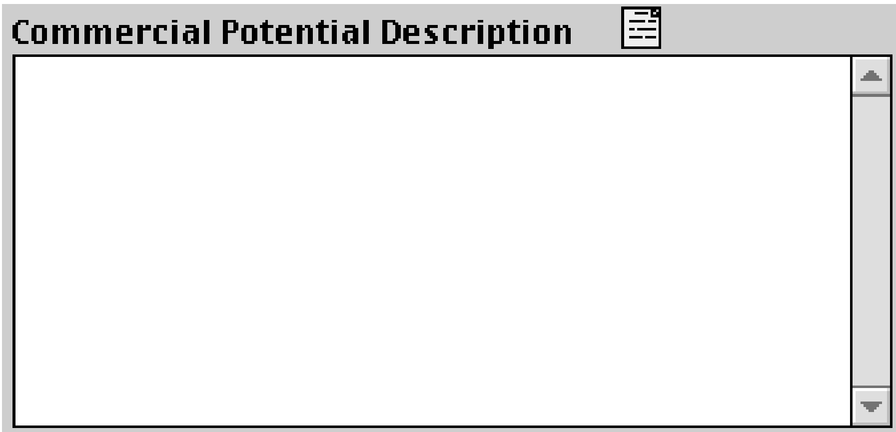
The *Enterable Text Box* allows the user to view and change field data. You will be able to recognize these boxes with their white background and black border around it. There are several actions associated with an enterable text box. These actions are:

- When you click on the text box, a text insertion point is placed at the point where you clicked in the text box.
- Clicking and dragging or double clicking within the text box highlights text and selects it.
- Typing within the text box inserts (or overwrites) text or replaces selected text.
- If you hit the "Delete" key on the Mac or the "Backspace" key on Windows, this will delete characters before the insertion point.
- Sometimes you might encounter a text box that will only allow specified type of characters to be entered. This is due in part to an input filter be placed on the text box by the programmer. One example of this is a date field, where you can only enter numeric values and the "/" character and no alpha characters.
- Sometimes you might encounter a text box that will only allow a maximum number of characters to be entered. This is due in part to the type of field restrictions placed on it by the programmer.

Non-enterable Text Box

The *Non-enterable Text Box* allows the user to view the data that is contained within the box without making any additions or modifications to the field data. You will be able to recognize these boxes with their gray background and black border around it. There are no actions associated with this box since it's non-enterable.

Text Area



The *Text Area* allows the user to view and change field data. You will be able to recognize these area's with their white background, black border and a vertical scroll bar on the right side of the field. The way this differs from the *Enterable Text Box* is the amount of data it can hold and the type of data it can hold. The Text Area can hold about 32K of alpha-numeric data. There are several actions associated with this area and those actions are:

- When you click on the text box, a text insertion point is placed at the point where you clicked in the text box.
- Typing within the *text box* inserts (or overwrites) text or replaces selected text.
- If you hit the "Delete" key on the Mac or the "Backspace" key on the PC, this will delete characters before the insertion point.
- Clicking the scroll arrows or dragging the scroll box scrolls the text area contents.

<u>Date Field</u>

The *Date Field* displays date field information. The format for entering a date in this field will be MM/DD/YYYY. This field can be enterable or non-enterable depending on it's use or purpose. If the field is enterable, then it will have several actions associated with it and those actions are;

- When you click on the *date field*, a text insertion point is placed at the point where you clicked in the date field.
- Clicking and dragging or double clicking within the *date field* highlights text and selects it.
- Typing within the *date field* inserts (or overwrites) text or replaces selected text.
- If you hit the "Delete" key on the Mac or the "Backspace" key on the PC, this will delete characters before the insertion point (except input filter characters such as slashes).
- Invalid or impossible dates are not accepted in the *date field* when you try to leave a data field. If the user enters one of these types of dates, then a message will appear informing the user that an invalid date has been entered.

<u>NOTE</u>: Empty *date fields* appear as 00/00/00 .

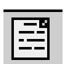
<u>List Box</u>

The *List Box* presents a list of items for the user to choose from. You will be able to recognize the *List Box* with a green background with a raised border. To select an item from the box you would move your mouse to the box, click on it and keep the mouse button pressed. A pop up list will then appear. While pressing the mouse button, you can move the mouse pointer through the list until you have found the item that you want to choose. After you have found the item, release the mouse button over that item and the popup will go away and the item will then be selected and displayed in the List Box. With a *List Box* you will not be allowed to type characters directly into the box.

Prompt list

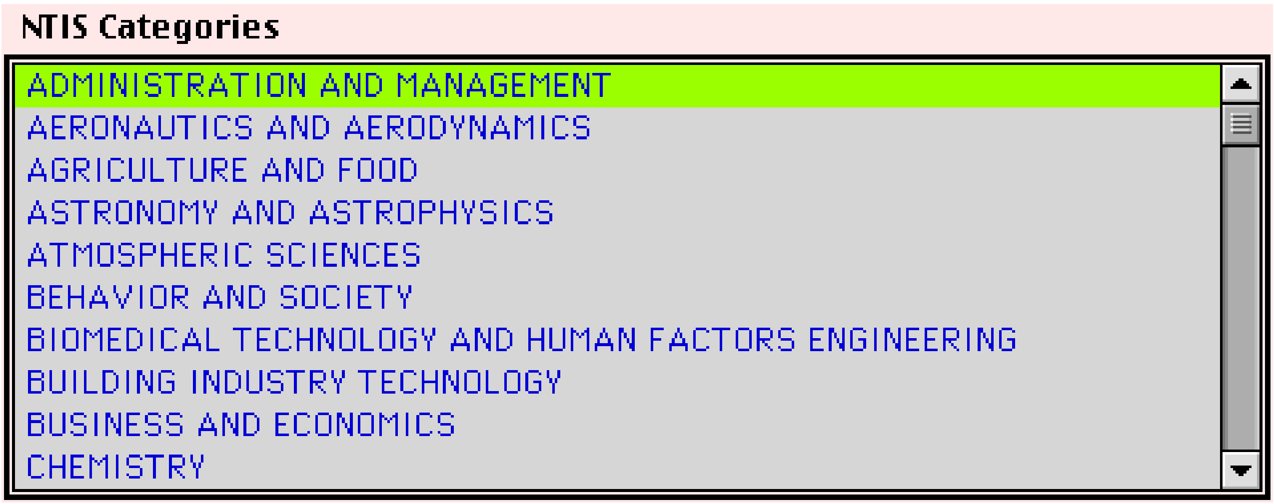
The purpose of the *Prompt list* is to allow the user to choose from a list of values for the associated input area. These list will usually be located on the left side of the associated input area. You will be able to recognize the *Prompt list* by looking for a label with an arrow right below the label. When you click on the list, it will display a list of menu items. Moving the mouse down highlights each menu item. To select the item you just simply move the mouse until the item you want is highlighted and then release the mouse button and the menu items list will go away and your selected item will be displayed in the associated input area.

Text Edit Button



The purpose of the *Text Edit* button is to allow the user to edit large blocks of text. This button is usually located above a *Text Area*. If you move your mouse over the button, a "tip" window will appear with some help text on the button. Since some *Text Area's* are too small to perform a useful edit, when you click on this button a dialog box with a simple input screen will be displayed with the text from the associated field that the button is linked to.

Scrolling List Box



The purpose of the *Scrolling List Box* is to allow the user to choose from a list of values in a scrolling text area. You can view the contents of the list by moving the vertical scroll bar up and down. When you single click or double click on an item in the list, it will highlight that item and will initiate an action (depending on the list).

New Window Button

The purpose of the *New Window* button is to allow the user to create a new data window. The *New Window* button can be identified by its oval shape and blue background. The button text will read "New Window" or on the smaller one it will have for the button text an "n". When you click on this button, a new data window will open with the specified or appropriate table loaded in its list view. If only one record is in the current selection for the table when loaded, then the view will default to the data screen.

Selector Buttons

Selector buttons appear as a hand holding or presenting a business card, and are used to display a selector window that allows the user to search either people or companies. If the desired record is not found, one may be entered, or if need be, a record may be edited. Accepting the selected record associates the person or company to the record displayed in the screen with the *Selector* button.

Selector Window

When you click on the *Selector* button, the Selector Window will open up with the records that were displayed on the screen with the Selector button. If no records were displayed with the *Selector* button, then none will be displayed in the scrollable area of the window.

When the window opens up, if you look in the blue title bar you will see the instructions indicating whether a person or a company is to be selected.

To search for a person or company you would go the prompt located right below the blue title bar. There you will see a *Enterable Text Box* where you will type in the first few characters of the desired name. When you type in the name there is no need to use the wildcard character since it will be automatically added to the name that you typed. After you have typed the desired name, press Tab or Return key to load the records matching the letters typed. If any records are found they will appear the in *scrollable area* below this prompt and if you look below the right hand corner of the *Scrollable List Area* you will see the number of records returned that matched your request. If no records were found matching the characters of the desired name you typed in, then a message will appear in the lower right hand corner of the dialog informing you that there were no personnel or companies found matching the <name> you typed in.

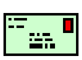
Once you have your list of people or companies in the *Scrollable List Area*, you can select the desired person or company in one of two ways. The first is to use the up and down arrow keys to scroll through the entries. After you have found the desired entry, you can use your mouse to double click on the entry and it will automatically select the entry, close the dialog box and associate the selected person or company with data from the previous screen or you can single click on the entry and click the *Accept* button. Once you have clicked the *Accept* button, the dialog box will close and associate the selected person or company with data from the previous screen.

If the person or company you are looking for did not come up in the list, then you can add that person or company by clicking on the *New...* button located below in the lower left hand corner of the *Scrollable List Area*. When you click on the *New...* button, the input form for either people or company will come up. After you have entered the information and clicked on the *Accept* button, the input form will disappear and you will be returned to the previous screen where the person or company information that you just entered will be associated with the data. If you cancel out of the input layout, then you will be returned to the previous screen with no change in the person or company field.

If you have found the person or company entry that you were looking for and you need to update their information, you can do this by single-clicking on the entry in the *Scrollable List Area* to highlight it and then going and clicking on the *Modify...* button located below the *New...* button. After you have clicked on the *Modify...* button, the information will be displayed in its associated record window. Once this form is up, you can edit the information if you have the proper access rights. Once you have finished your modifications you can click on the *Accept* button which will save your changes and associate it with the data on the previous screen or you can click on the *Cancel* button which will not save any changes that you might have made and will return you to the previous screen without changing the entry currently in person or company field.

If you decide that you do not want to make any changes that will affect the data on the previous screen, you can click on the *Cancel* button. After you have clicked the *Cancel* button, you will be returned to the previous screen.

Envelope Button

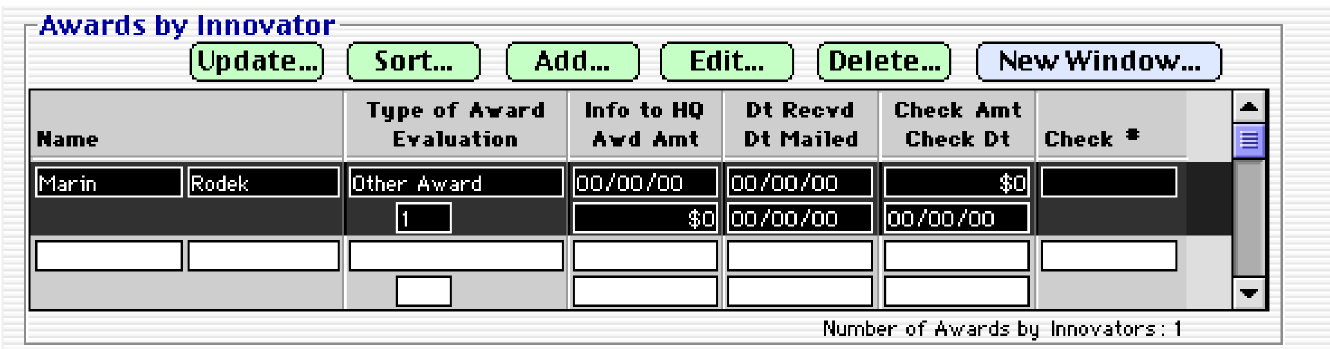


The purpose of the *Envelope* button is to allow the user to print an envelope that contains the address data that the button is associated with. When you click on this button it will ask you to confirm that you want to print an envelope. If you click on the *OK* button, the envelope will be printed. If you click on the *Cancel* button, the envelope will not be printed and you will be returned back to the input form.

NOTE: This is only available if your site supports automatic envelope printing.

Included Forms

Add Button
Edit Button
Delete Button
Update Button
Sort Button



Add Button

The purpose of the *Add* Button is to allow the user to add information to a field or included form. The *Add* button can be identified by its oval shape and green background. When you click on the *Add* button you will be presented with the correct dialog box used to enter the field data (the Add dialog box usually correlates with the Edit dialog box).

Edit Button

The purpose of the *Edit* Button is to allow the user to edit information in a field or included form. The *Edit* button can be identified by it's oval shape and green background. When you click on the *Edit* button you will be presented with the correct dialog box used to enter the field data (the Edit dialog box usually correlates with the Add dialog box).

Delete Button

The purpose of the *Delete* Button is to allow the user to delete information in a field or included form. The *Delete* button can be identified by its oval shape and green background. When you click on the *Delete* button you will be presented with a dialog box asking for confirmation of the deletion. Subsequently the selected information or records that are highlighted are deleted. If no records are selected, then clicking the *Delete* button displays an alert prompting the user to choose a record.

Update Button

The purpose of the *Update* Button is to allow the user to update information on a set of records contained in an included form. This button will allow you to update the information all at once instead of going to each record within the Included form and modifying it that way.

Sort Button

The purpose of the *Sort* Button is to allow the user to sort information in a field or included form. The *Sort* button can be identified by its oval shape and green background. When you click on the *Sort* button you will be presented with the 4D Sort Editor dialog box. Through this dialog you can sort the information in any order that you choose.

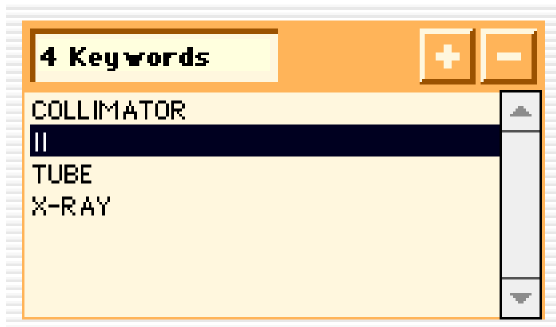
Keywords List

Overview
Keyword Entry Dialog

Overview

The purpose of the Keywords List is to allow the user to view and manage keywords associated with the current record.

KeyWords List Area

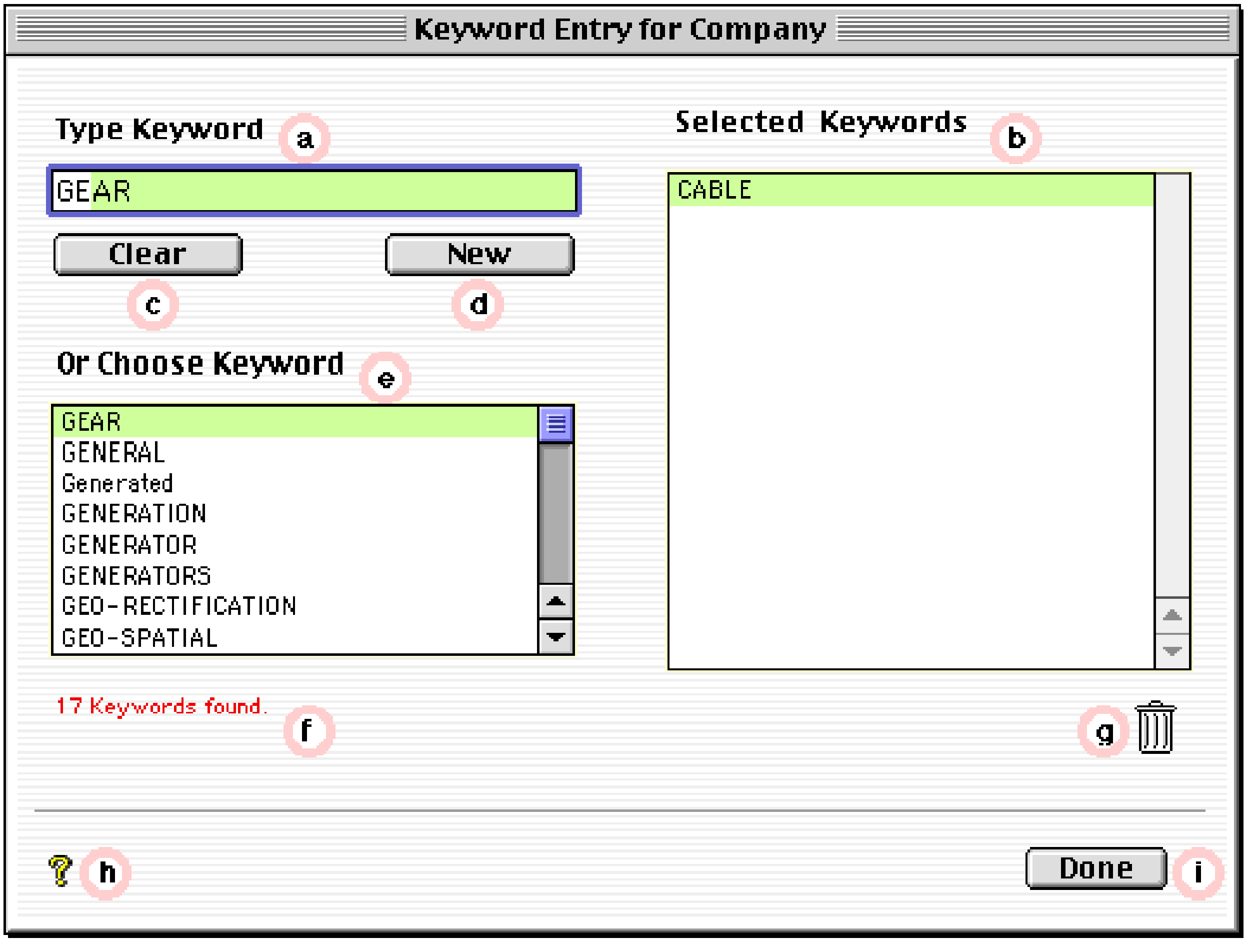


The interface for the Keywords list on the input form allows you scroll through the keywords associated with the current record, let's you add ("+" button) or remove ("-" button) a keyword from the list and displays the number of keywords associated with the record. To add a new keyword to the list, click on the "+" button within the keyword interface on the input form. This will open the Keyword Entry dialog box (this dialog will be discussed below) and from there you will be able to select and add a keyword to the list for the current record. To remove a keyword from the keyword list, go to the keyword list interface on the record window and highlight the keyword that you want to remove by clicking on it once. After you have highlighted the word, move your mouse to the "-" button and click on it. The keyword will then be removed from the list.

Keyword Entry Dialog

The Keyword Entry Dialog is where you can add or remove a keyword to a list of keywords associated with a record. You can also add a keyword to the master list of keywords.

Keyword Entry Dialog



a. The *Type Keyword* entry area is used to enter the keyword. The *Keyword Dialog* performs searches on the master keyword table automatically as each letter is typed. The results of these searches are displayed in the *Choose* Keyword area (e). In addition, the first matching keyword is placed into the *Type Keyword* area to provide a clairvoyance feature. If the provided keyword is the desired keyword, simply hit the Enter key on the keyboard to enter that keyword into the *Selected Keywords* area. If the provided keyword is not the desired keyword type the next letter of the desired keyword or select it from the *Choose Keyword* area.

b. The *Selected Keywords* area shows the keywords selected for the current record.

c. The **Clear** button resets the *Type Keyword* entry area.

d. If the desired keyword is not found a new one can be created by clicking the New button.

e. The *Choose Keyword* area shows the available keywords based on the letters typed into the Type Keyword entry area. A keyword may be added to the *Selected Keywords* area by dragging it to that area. A keyword may be removed from the Keywords table by dragging it to the **Trash Can** icon

Note: Unless you have access to the Keywords table, you will have to contact your site's DBA and have that person remove any keyword(s) that you might have put in by mistake.

f. Helpful messages are displayed in this area.

g. To remove a keyword from the *Selected Keywords* area, drag it to this **Trash Can** icon.

h. The **Help**  icon opens the user's web browser to the NASA TechTracS support site.

i. When all desired keywords are in the *Selected Keywords* area click the **Done** button to return to the *Record Screen*.

After you have finished with the Keyword Entry Dialog you can return to your previous display by clicking the *Done* button which is located in the lower right hand corner of the dialog.

Data Entry Filters

Overview
This section describes the various data entry filters that you might encounter on the Input Screen.

7 Digit UPN
The filter for this field will only allow you to enter numbers. You won't have to enter the dashes since the filter is formatted to accept a correct UPN. The filter is defined as "0-9,###-##-##" .

Alpha Key
This filter will accept any alphanumeric characters entered from the keyboard. The filter is defined as "a-z;A-Z;0-9;-;," .

Area Code
This filter will accept a three digit numeric. You won't have to enter the opening and closing parenthesis since the filter has already included them. The filter is defined as "0&9(###)".

Date
This filter is set up to take a two digit month and day with a four digit year. You won't have to enter the "/" characters since the filter has already included them. The filter is defined as "0&9##/##/####" .

Dollar

This filter is set up to take any numeric digit and the "." and "-" characters. You won't have to enter the dollar sign or comma characters since they will be covered in the format display. The filter is defined as "0-9;.;-" .

Phone

The filter for this field will only allow you to enter a seven digit phone number. You won't have to enter the dash since the filter is formatted to accept a correct seven digit phone number. The filter is defined as "0&9,###-####" .

No Wildcard

This filter is used on a field or variable where the programmer wants to keep the user from entering the "@" character. The filter is defined as "(-?;A-~;-;.!; ;#;$;%;&;,;'" .

Numeric

This filter is used on a field or variable when the programmer wants the user to be able to enter only numeric characters. Besides numeric, the filter will allow a period for a decimal point and a dash for a negative number. The filter is defined as "0-9;.;-" .

SSN

The filter for this field will only allow you to enter a nine digit Social Security Number. You won't have to enter the two dashes since the filter is formatted to accept a correct nine digit Social Security Number. The filter is defined as "0&9###-##-####" .

Standard Alpha

When this filter is used on a field or variable, the filter will only allow you to enter any alphanumeric characters except for a "Tab" or a "Carriage Return". There are also a few special characters that the filter will allow you to enter. If you are unsure about which special characters you can enter, you can try to enter the character in the field or variable or you can contact Technical Support for assistance.

Standard Text

When this filter is used on a field or variable, the filter will allow you to enter the same characters as you would on a field or variable that is using the "Standard Alpha" filter plus it will allow you to enter a "Tab" or a "Carriage Return". You can also enter any special characters in a field or variable that uses this filter. If you are unsure about which special characters you can enter, you can try to enter the character in the field or variable or you can contact Technical Support for assistance.

Uppercase

This filter is used on a field or variable when the programmer wants the user to be able to enter only uppercase alphanumeric characters. The filter is defined as "A-Z;0-9; ;,;.;/;!;';-;#;@;" .

Zip Code

The filter for this field or variable will only allow you to enter a nine digit zip code with one dash. The filter is defined as "0-9;-" .

Data Formats

Overview

This section describes the various data formats that you might encounter on the Input Form.

7 Digit UPN

When this format filter is used on any field or variable containing a 7 Digit UPN, it will be display as ###-##-## .

Area Code

When this format filter is used on any field or variable containing an area code, it will be display as (###) .

District

When this format filter is used on any field or variable containing the congressional district number, it will be display as ## .

Dollars

When this format filter is used on any field or variable containing a dollar value, it will be display as $###,###,###,##0.00 .

DTS

When this format filter is used on any field or variable containing a Date-Time Stamp, it will be display as ####/##/## - ##:##:## .

Job Number

When this format filter is used on any field or variable containing a Job Number, it will be display as 000000.

Patent Number

When this format filter is used on any field or variable containing a Patent Number, it will be display as ###,###,###,### .

Phone

When this format filter is used on any field or variable containing a Phone Number, it will be display as ###-#### .

SSN

When this format filter is used on any field or variable containing a SSN, it will be display as ###-##-#### .

Menu Items

Overview

This section discusses the items that you can access from the Menu bar while in a *Record Window*.

File Menu

From the File Menu, you can access the following items while in a record window; Preferences, Page Setup, Print Merge, Print and Quit.

> **Note**: The **Choose Table** item has been removed from the **File** menu since all table selections are now made from the *Control Center* which is always available.

Preferences

While in a record window, you can bring up the Preferences dialog by going to the **File** menu and selecting **File** => **Preferences**.... This will bring up the Preferences dialog and you will be able to make any changes to your preferences that you would like. You might encounter a time when you cannot access the Preference dialog from the record window because you haven't performed any action on the record that you are currently in. If you do encounter this message, then perform the desired action on the current record and then try accessing the Preference dialog again.

Page Setup

While in the record window you can change the page setup settings for printing by going to the **File** menu and selecting **File** => **Page Setup**.... This will bring up the standard page setup dialog that is used under your computer's operating system. This should not have any effect on the record you are currently in.

Print Merge

While in the record window you can perform a print merge by going to the **File** menu and selecting **File** => **Print Merge**.... This will bring up the TechTracS print merge dialog. You can find out more details about this function in the printing section of this guide.

Print

While in the record window you can print by going to the **File** menu and selecting **File** => **Print**.... This will bring up the TechTracS print dialog. You can find out more details about this function in the printing section of this guide.

TIP: You can also print by pressing the "Cmd + P" keys on the Mac or by pressing the "Ctrl + P" keys on Windows.

Quit

While in the record window you can also quit out of TechTracS by going to the **File** menu and selecting **File** => **Quit** . This will bring up a dialog to confirm that you want to quit. If you click *OK* , you will then be taken out of TechTracS. If you click *Cancel*, you will be taken back to the record window with the current record still active. If you have made some changes to the record you are currently in and you have the *Confirm Saves* check box marked in your Preferences record, then when you select this item it will prompt you on what you would like to do with changes you have made to the record. If you do not have the *Confirm Saves* check box marked, then the current record will be saved and you will then get the dialog asking you to confirm the quit operation.

TIP: You can also quit by pressing the "Cmd + Q" keys on the Mac or by pressing the "Ctrl + Q" keys on Windows.

Enter Menu

From the Edit Menu, you can access the following items while in an input form; New, Accept Record, and Cancel Layout.

Notes: - **Enter In List** item has been removed from the **Enter** menu because it is obsolete.
- The **Data Control Panel** item (below the Accept item) has been renamed **Close**.

New

While in the record window, a new record can be added to the current table by going to the **Enter** menu and selecting **Enter** => **New**.....

If changes have been made to the record and *Confirm Saves* preference is checked, then a prompt is displayed asking what to do with changes made to the record. If *Confirm Saves* preference is unchecked, then the current record will be saved .

TIP: You can also add a new record by pressing the "Cmd + N" keys on the Mac or by pressing the "Ctrl + N" keys on Windows.

NOTE: Some tables have dialogs which require the user to enter pertinent data before entering the record window. For example, when adding a new [Technology] record, a dialog is displayed requesting the user to enter the new Case Number.

Accept Record

This menu item offers you another way to save a record without using the *Accept* button or it's associated keyboard short cut. You can use this item by going to the **Enter** menu and selecting **Enter** => **Accept Record**....

Cancel Layout

This menu item offers you another way to cancel a record with out using the *Cancel* button or it's associated keyboard short cut. You can use this item by going to the **Enter** menu and selecting **Enter** => **Cancel Layout**....

Select

From the Select Menu, you can access the following items while in an input form; Show All, Quick Find, Find, Quick Query, Query Editor and Query by Formula.

Note: **Query by Index** item has been removed from the **Select** menu because it is obsolete.

Show All

While in the record window you show all the records in the table that you are currently in by going to the **Select** menu and selecting **Select** => **Show All**.... This will take you out of the record window and will return you back to the list window with all of the records in the current table displayed. If you have made some changes to the record you are currently in and you have the *Confirm Saves* check box marked in your Preferences record, then when you select this item it will prompt you on what you would like to do with changes you have made to the record. If you do not have the *Confirm Saves* check box marked, then the current record will be saved and you will then be taken to the listing form with all records showing.

TIP: You can also show all records by pressing the "Cmd + G" keys on the Mac or by pressing the "Ctrl + G" keys on Windows.

Quick Find

While in the record window you can do a quick find for a record or records by going to the **Select** menu and choosing **Select** => **Quick Find**..... When this item is selected, you will get a dialog prompting you to enter the value to search the primary key in the table that you are currently in. If the search finds any record(s) that matched the value that you entered, then the first record will appear in the record window. You can look at the title bar of the input form and it will tell you how many records it found. If the search did not turn up any records, then you will receive a message saying that no records were found and ask you if you would like to add a new one.

Find

While in the record window you can do a search for a record using any of the key fields in the table you are currently in by going to the **Select** menu and choosing **Select** => **Find**.... When this item is selected you will get a dialog presenting you with a popup of the key fields for the table you are currently in. Selecting one of these keys will change the search parameters displayed below the popup area. Each find is different for each table. If the search finds any record(s) that matched the value that you entered, then the first record will appear in the record window. You can look at the title bar of the record window and it will tell you how many records it found. If the search did not turn up any records, then you be taken back to the list window where it will tell you that there are no records selected. If you have made some changes to the record you are currently in and you have the *Confirm Saves* check box marked in your Preferences record, then when you select this item it will prompt you on what you would like to do with changes you have made to the record. If you do not have the *Confirm Saves* check box marked, then the current record will be saved and you will then be presented with the Find dialog box.

TIP: You can do a Find by pressing the "Cmd + F" keys on the Mac or by pressing the "Ctrl + F" keys on Windows.

Quick Query

While in the record window you have the ability to use this menu item by going to the **Select** menu and choosing **Select** => **Quick Query**... When this item is selected you will get a dialog presenting you with a list of fields that will be searched on and you will also get a prompt where you can enter the value you would like to search the database for. If you have made some changes to the record you are currently in and you have the *Confirm Saves* check box marked in your Preferences record, then when you select this item it will prompt you on what you would like to do with changes you have made to the record. If you do not have the *Confirm Saves* check box marked, then the current record will be saved and you will then be taken into the Quick Query dialog.

For more information on "Quick Query", please refer to the section in this guide that discusses this function.

TIP: You can do a Quick Query by pressing the "Cmd + S" keys on the Mac or by pressing the "Ctrl + S" keys on Windows.

Query Editor

While in the record window you have the ability to use 4D Query Editor by going to the **Select** menu and choosing **Select** => **Query Editor**... When this item is selected you will get a dialog presenting you with the 4D Query Editor. If you have made some changes to the record you are currently in and you have the *Confirm Saves* check box marked in your Preferences record, then when you select this item it will prompt you on what you would like to do with changes you have made to the record. If you do not have the *Confirm Saves* check box marked, then the current record will be saved and you will then be taken into the 4D Query Editor.

For more information on the 4D Query Editor, please refer to the section in this guide that discusses this function.

TIP: You can also get to the Query Editor by pressing the "Cmd + E" keys on the Mac or by pressing the "Ctrl + E" keys on Windows.

Query By Formula

While in the record window you have the ability to use this menu item by going to the **Select** menu and choosing **Select** => **Query By Formula**... When this item is selected you will get a dialog presenting you with 4D Query by Formula editor. If you have made some changes to the record you are currently in and you have the *Confirm Saves* check box marked in your Preferences record, then when you select this item it will prompt you on what you would like to do with changes you have made to the record. If you do not have the *Confirm Saves* check box marked, then the current record will be saved and you will then be taken into the Query By Formula editor.

For more information on "Query By Formula", please refer to the section in this guide that discusses this function.

Utlilties

From the Utilities Menu, you can access the following items while in *Record Window* form; Charts, Drawing, Spreadsheet, Word Processing, Calendar, Queue Manager, Daily Message, Statistics Calculator, Agencywide Query, TechTracS Structure and Data Dictionary.

Note: The **Report** menu has been renamed **Utilities** to better reflect its functions.

Charts

While you are in an record window, you can access the charting plug-in 4D Chart that is used in TechTracS by going to the **Utilities** menu and selecting **Utilities** => **Charts**... This will open up the charting plug-in in a new and separate window.

Drawing

While you are in an record window, you can access the drawing plug-in 4D Draw that is used in TechTracS by going to the **Utilities** menu and selecting **Utilities** => **Drawing**... This will open up the drawing plug-in in a new and separate window.

Spreadsheet

While you are in an record window, you can access the spreadsheet plug-in 4D Calc that is used in TechTracS by going to the **Utilities** menu and selecting **Utilities** => **Spreadsheet**... This will open up the spreadsheet plug-in in a new and separate window.

Word Processing

While you are in an record window, you can access the word processing plug-in 4D Write that is used in TechTracS by going to the **Utilities** menu and selecting **Utilities** => **Word Processing**... This will open up the word processing plug-in in a new and separate window.

Calendar

While you are in an record window, you can access the Calendar function that is used in TechTracS by going to the **Utilities** menu and selecting **Utilities** => **Calendar**... This will open up the Calendar in a window defaulting to the month of the current date that is set on you computer. If you have made some changes to the record you are currently in and you have the *Confirm Saves* check box marked in your Preferences record, then when you select this item it will prompt you on what you would like to do with changes you have made to the record. If you do not have the *Confirm Saves* check box marked, then the current record will be saved and you will then be taken into the Calendar window.

For more information on "Calendar", please refer to the section in this guide that discusses this function.

Queue Manager
While you are in an record window, you can access the TechTracS queue manager by going to the **Utilities** menu and selecting **Utilities** => **Queue Manager**... This will open up the Queue Manager in a new and separate window.

Daily Message
While you are in an record window, you can access the TechTracS Daily Message window by going to the **Utilities** menu and selecting **Utilities** => **Daily Message**... This will open up the Daily Message window in a new and separate window.

Statistics Calculator
While you are in an record window, you can access the TechTracS Statistics Calculator by going to the **Utilities** menu and selecting **Utilities** => **Statistics Calculator**... This will open up the Statistics Calculatorin a new and separate window.

Agencywide Query
While you are in an record window, you can access the TechTracS Agenctwide Query window by going to the **Utilities** menu and selecting **Utilities** => **Agencywide Query**... This will open up the Agenctwide Query window in a new and separate window.

TechTracS Structure
While you are in an record window, you can access the TechTracS Structure by going to the **Utilities** menu and selecting **Utilities** => **TechTracS Structure**... This will open up the TechTracS Structure display in a new and separate window. When this display opens up it will default to the table that you are currently in.

Data Dictionary
While you are in an record window, you can access the TechTracS Data Dictionary by going to the **Utilities** menu and selecting **Utilities** =>**Data Dictionary**... This will open up the Data Dictionary display in a new and separate window. When this display opens up it will default to the table that you are currently in.

Printing

Introduction

There are several built-in and customized printing options available in NASA TechTracS. Customized printing options include:

- Canned reports
- Letters

Canned reports are an integral part of NASA TechTracS and cannot be changed by the user. Letters however are developed using 4D Write and can be modified by users who have access to 4D Write.

Built-in options include:

- Print Merge
- 4D Write
- 4D Label Editor
- 4D Quick Report Editor
- 4D Chart

Built-in printing options print on demand using the operating system's standard Page Setup and Printing dialogs. In other words, the Personal Agent or Auto Agent are not used to print print jobs initiated with 4D Label Editor, 4D Quick Report Editor, 4D Write, or 4D Chart.

Built-In Printing Tools

NASA TechTracS contains four very powerful built-in printing tools:

1. 4D Quick Report (**Utilities=> Quick Report...**).

2. 4D Labels (**Utilities=> Labels...**),

3. 4D Write (**Utilities=> Word Processing...**), and

4. 4D Chart (**Utilities=> Charts...**)

All four tools are available within NASA TechTracS from the Utilities menu.

Utilities Menu

NOTE: Because the tools are built-in, the developer has no control over the functionality of the built-in printing tools.

A fifth tool that is built-in as part of MagentaKit, which is the foundation of NASA TechTracS, is Print Merge.

Print Merge

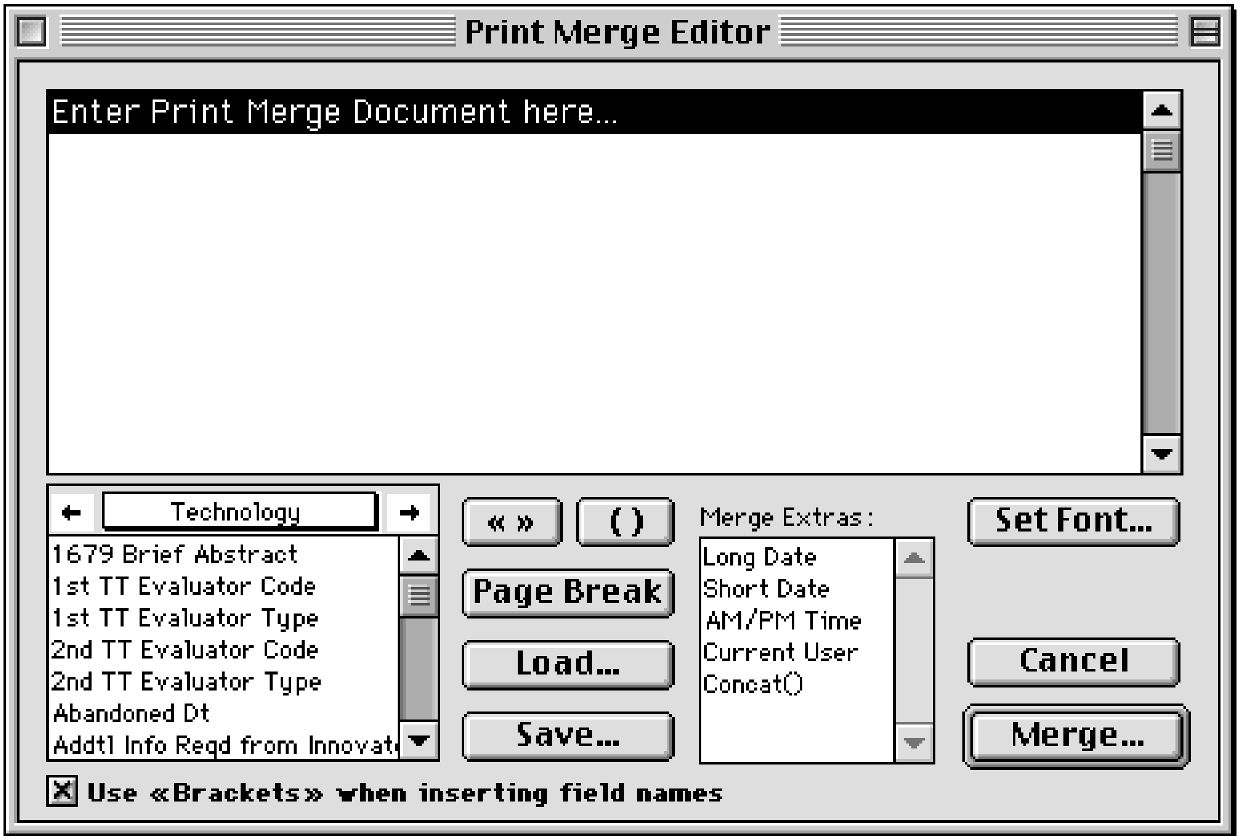
Introduction

Print Merge is a very simple word processor with the ability to merge values of data fields. It is only available as a menu item (**File** => **Print Merge...**) while the user is in the listing screen or data entry screen.

Print Merge Menu Item

TIP: Print merge can be a useful tool when there are a limited number of 4D Write licenses and there are simple printing requirements.

Print Merge Dialog



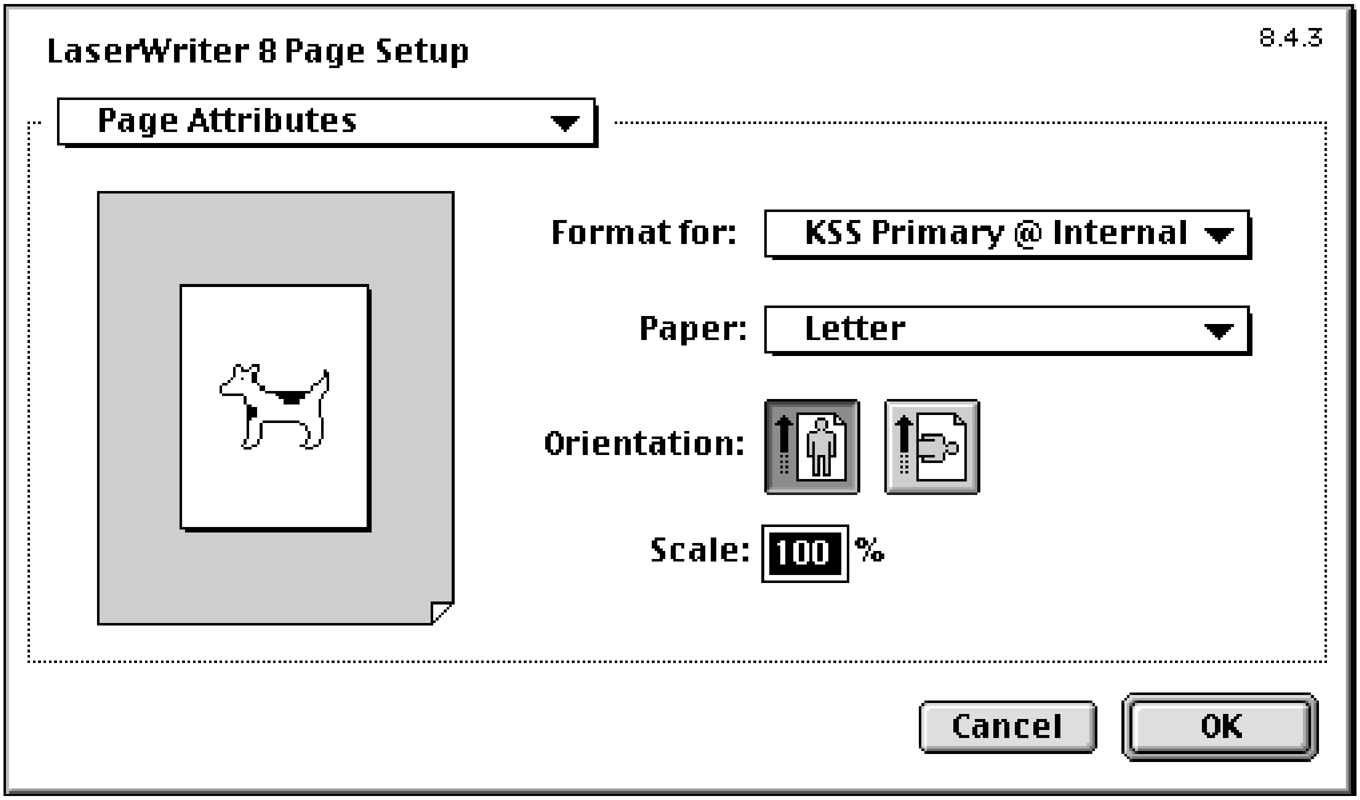
Page Setup

Page Setup is available from the menu item **File => Page Setup...**.

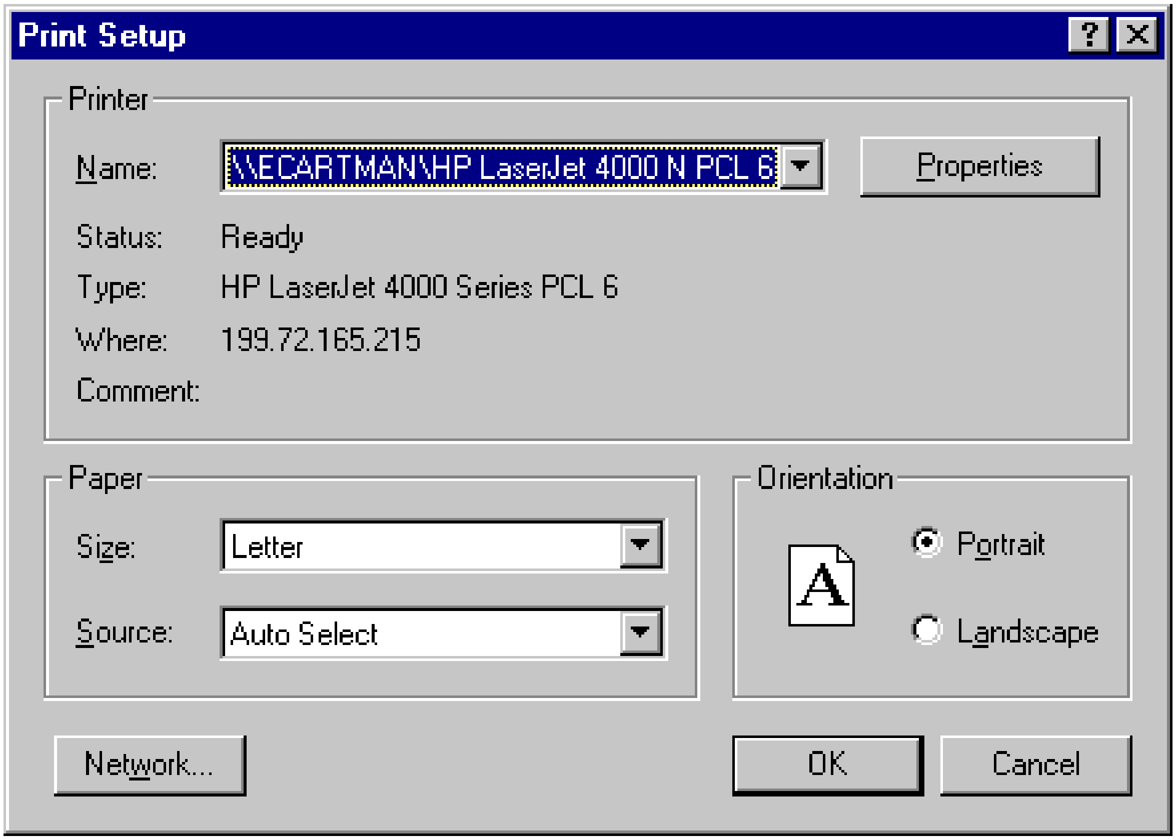
Page Setup Menu Item

Page Setup is only useful for setting the page attributes for printing jobs submitted using Print Merge. When Page Setup is invoked, it displays the standard page setup dialog that is used by all your computer applications.

Mac Page Setup Dialog

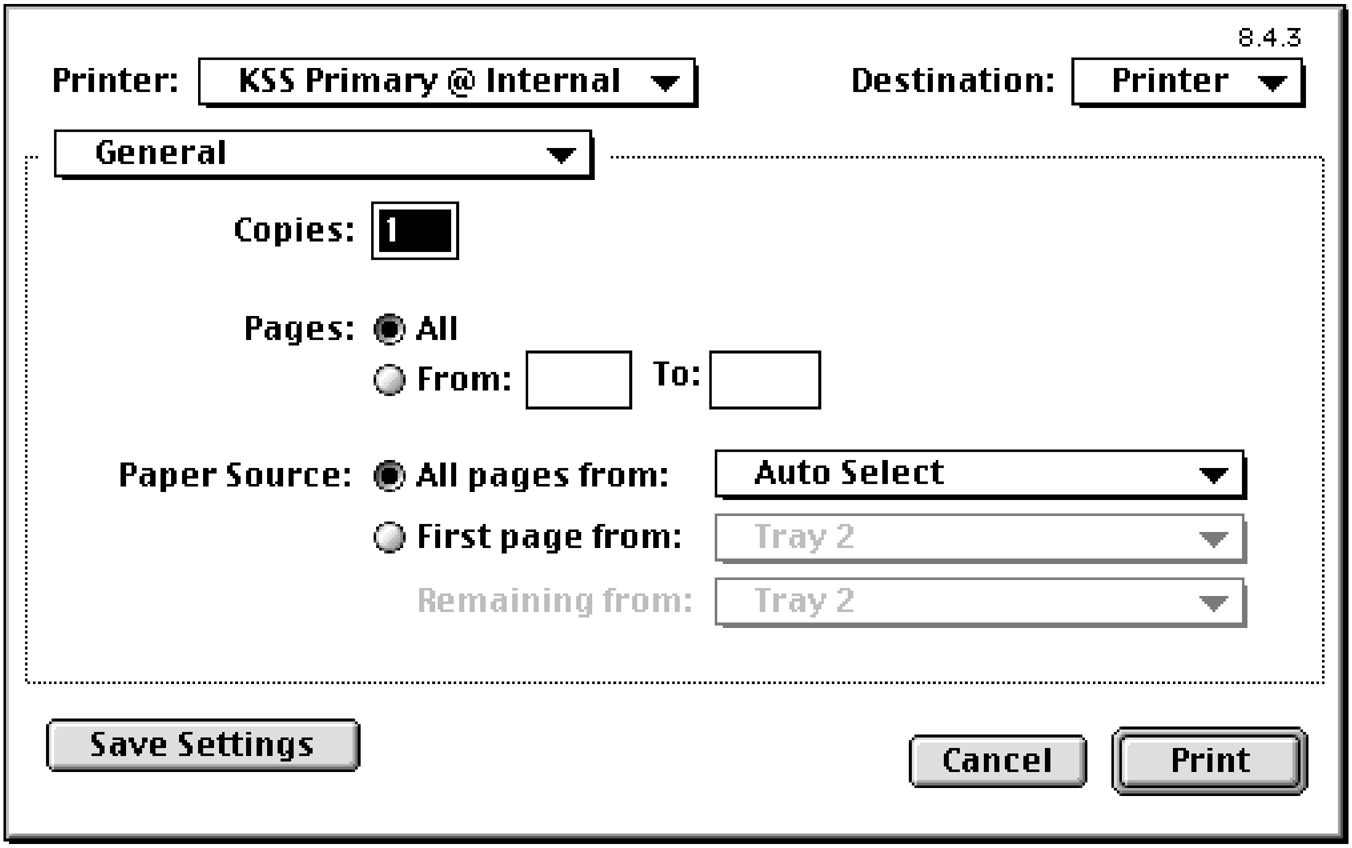


PC Page Setup Dialog

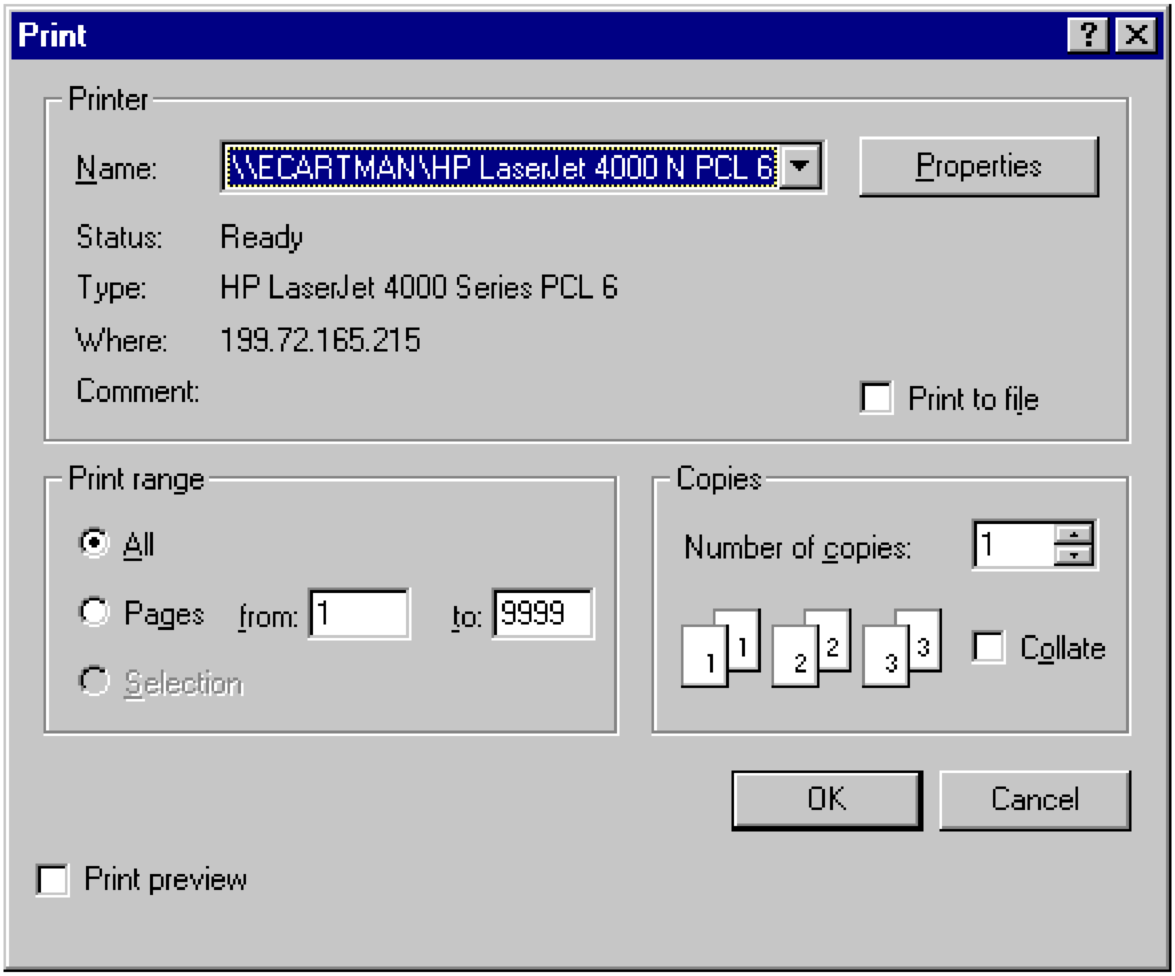


If the *OK* button is clicked, the standard Print dialog is displayed. Settings that are changed in the Print dialog affect other local printing functions.

Mac Print Dialog



PC Print Dialog

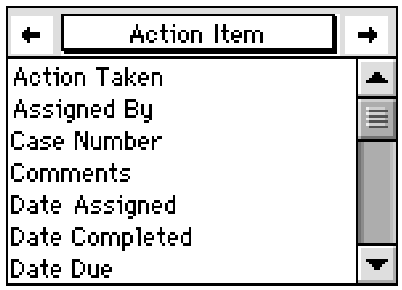


Merging Data Fields

Data fields are merged by clicking on any field located in the lower left hand corner of the dialog.

> NOTE: Even though is is possible to switch to another table, NASA TechTracS does not currently support related information in Print Merge. Therefore, there is no reason at this time to switch to another table.

Merged Data Fields Selection Box



Saving a Merge Document

To save a merge document, click on the *Save...* button and type in a file name.

Loading a Merge Document

To load a merge document, click on the *Load...* button and locate the saved file.

Merge Extras

Merge extras are provided by the NASA TechTracS developers to enhance the document. Merge extras include:

Long Date	the full text of the current date (i.e.. Tuesday, June 1, 1999)
Short Date	the current month, day, year (i.e.. 6/1/99)
AM/PM Time	the current time (i.e.. 7:04 PM)
Current User	the name of the current user signed into NASA TechTracS (i.e. Bob Martin)
Concat()	used to concatenate 2 strings. Concat has 2 forms: - The first form passes a single parameter and returns the text of the parameter plus a space if the parameter is non-blank. Example: <<Concat([People]MI)>> returns "K<space>". - The second form requires 2 parameters. If the first parameter is non-blank, then the first parameter is combined with the second parameter. Example: <<Concat([People]Dept;<>CR)>> returns "Raleigh Department<carriage return>".

Printing the Merge Document

In order to print a merge document, click on the *Merge...* button.

Changing the Font of the Merge Document

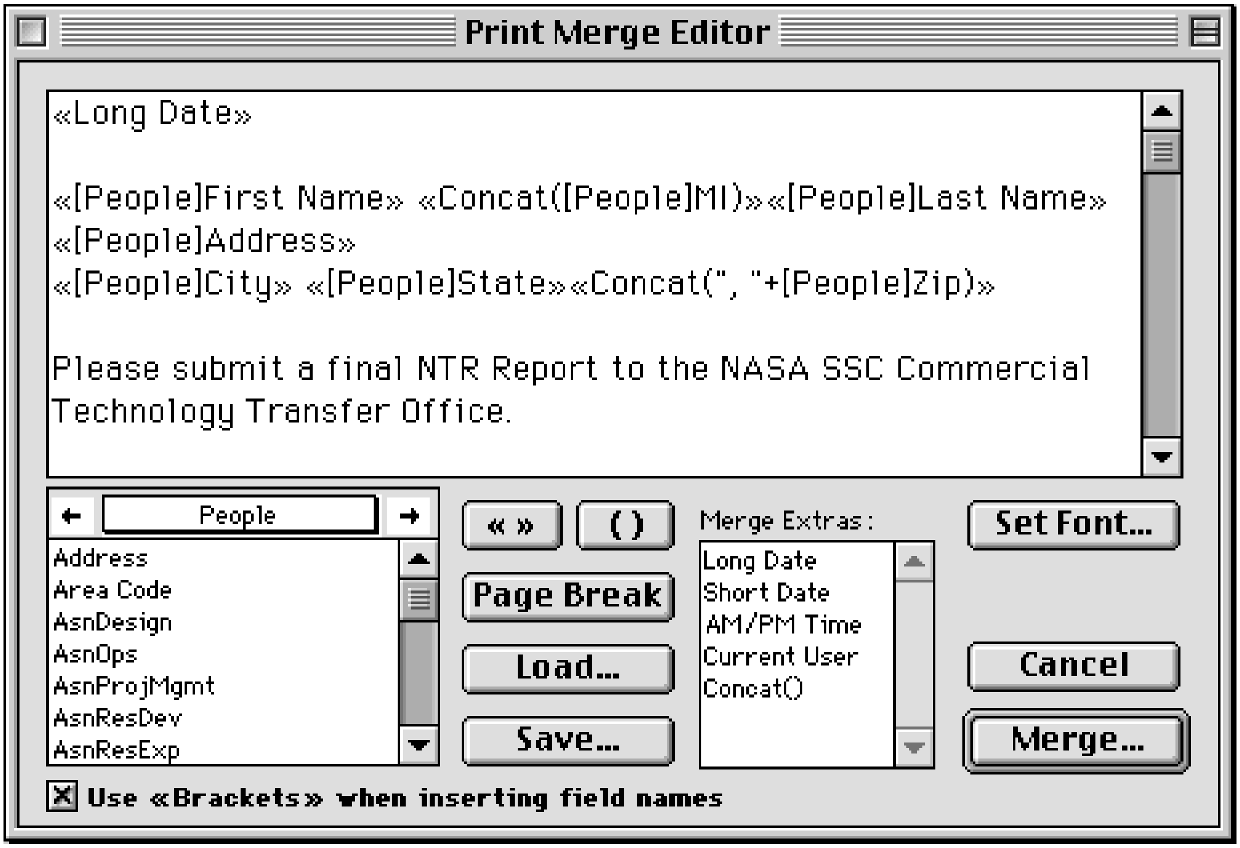
In order to change the font of the merge document, click on the *Set Font* button....

Set Font Dialog

Canceling Print Merge

In order to cancel Print Merge, click on the *Cancel* button.

Print Merge Example



Results of Print Merge Example:

Tuesday, June 1, 1999

Steve K Monteith
940 Main Campus Drive
Raleigh NC, 27606

Please submit a final NTR report to the NASA SSC Commercial Technology Transfer Office.

4D Label Editor

Overview

4th Dimension's Label editor provides a convenient way to print a wide variety of labels. With the Label Editor, the following can be accomplished:

- Design labels for mailings, file folders and file cards, and for many other needs.
- Specify the font, font size, and style to be used for the labels.
- Specify the number of labels across and down on each page.
- Specify the label page margins.
- Load and save label designs.
- Print labels.

Getting Started

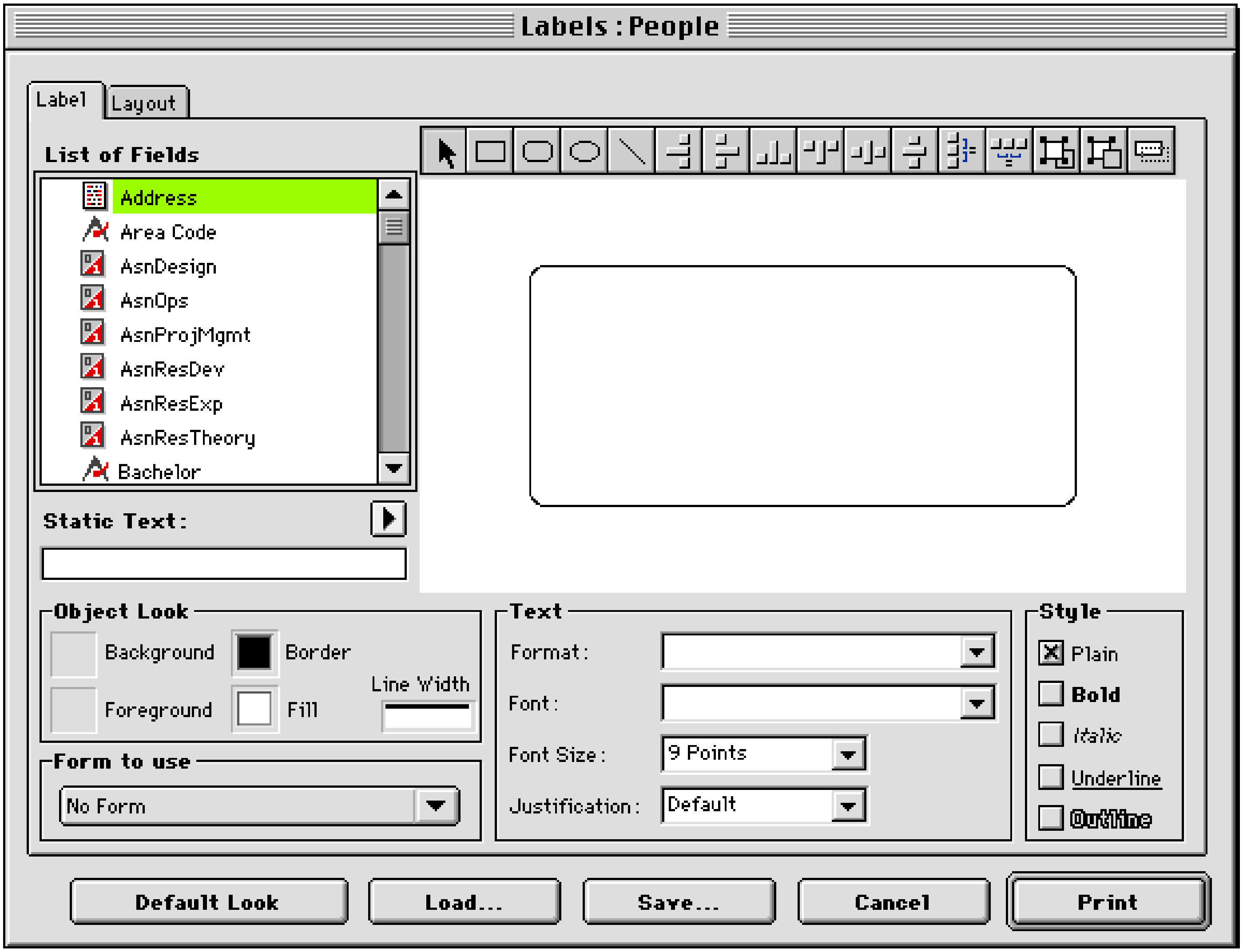
1. Select the table from which data will be used to print labels. (e.g. [People]).

2. Select the records to be used.

3. Select **Utilities**=> **Labels...** menu item.

4. The Label Editor window, also known as the Label Wizard, will be displayed.

Label Editor for the [People] table



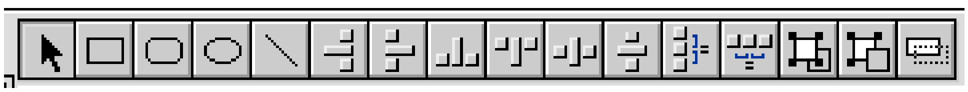
Components of the Label Editor

Label Tab

The Label page of the Label Wizard contains settings for designing and formatting labels. The Label tab contains the following elements:

1. *Toolbar*:
   The Label Wizard toolbar contains tools for drawing, selecting, aligning, distributing, and duplicating objects.

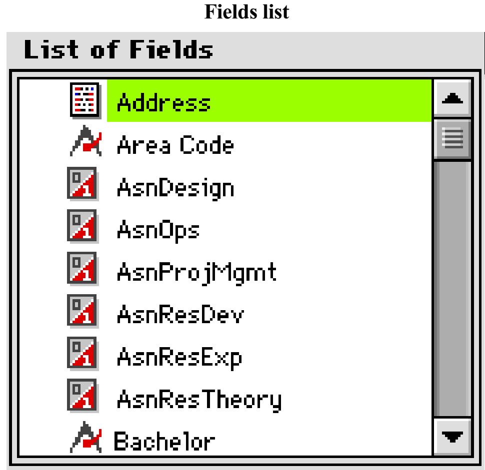
Label tab Toolbar



NOTE: The first Item is the Arrow tool, followed by the four Drawing tools (Rectangle, Rounded Rectangle, Oval, Line). The next six items are the Alignment tools (Align Right, Align Left, Align Bottom, Align Top, Align Horizontal Center, Align Vertical Center). The last five items of the toolbar are the tools to Distribute Vertically, Distribute Horizontally, Move to Front, Move to Back and Duplicate.

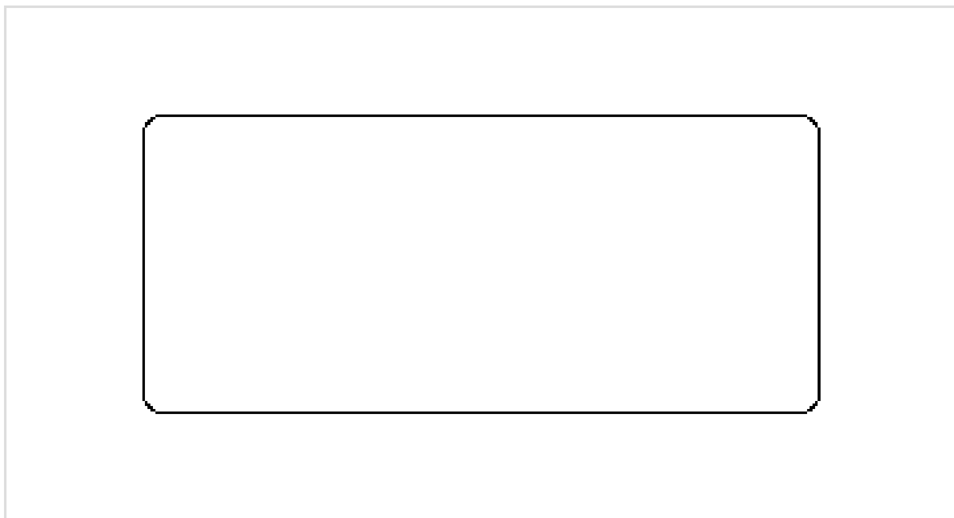
2. *Fields list*:
   This area displays the names of the fields in the current table in a hierarchical list. If this table is related to other tables, the relating fields have a plus sign (on windows) or a triangle (on Macintosh). Fields from the related table can be displayed by expanding the related fields. The fields in the related table are indented.

Fields list



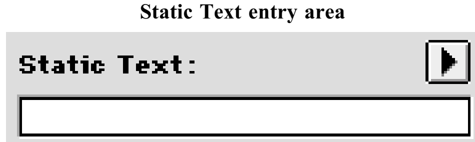
3. *Label preview area*:
Use this area to design the label.

Label preview area



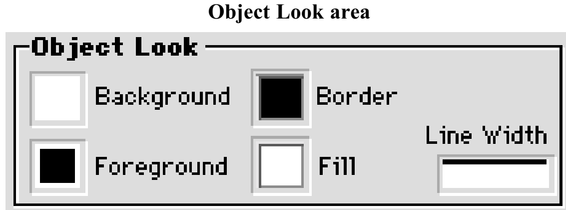
4 *Static Text entry area*:
Add static text objects to the label.

Static Text entry area



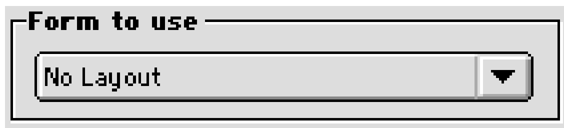
5. *Object Look area*:
These controls specify foreground and background colors, fill patterns, and borders for individual objects on the label.

Object Look area



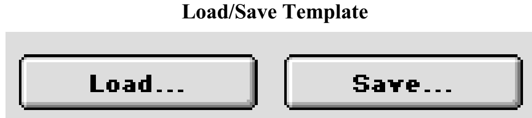
6. *Form to use Pop-Up list*:
Bypass the Label Wizard and use a form to print the labels. If using the Label wizard to create the label, select "No Form" (the default) from this list. Using the Label Wizard to create a form, choose it from this list. 4th Dimension will then ignore any other label specifications in the Label Wizard and print the labels according to the design or the specified form. As with any print job, it executes any form or object methods associated with the form.

Form to use Pop-Up list



7. *Load/Save Template*:
These two buttons allow the user to save a label created as a template and re-use it later. The Load button allows the user to reload the template when needed.

Load/Save Template

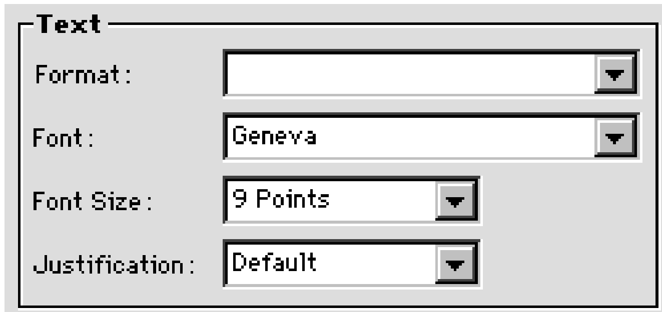


8. *Default Look button*:
This button applies the default set of "Object Look" attributes to the selected object.

Default Look button

9. *Text attributes areas*:
   These controls allow the specification of the font, font size, display format, and style of the text.

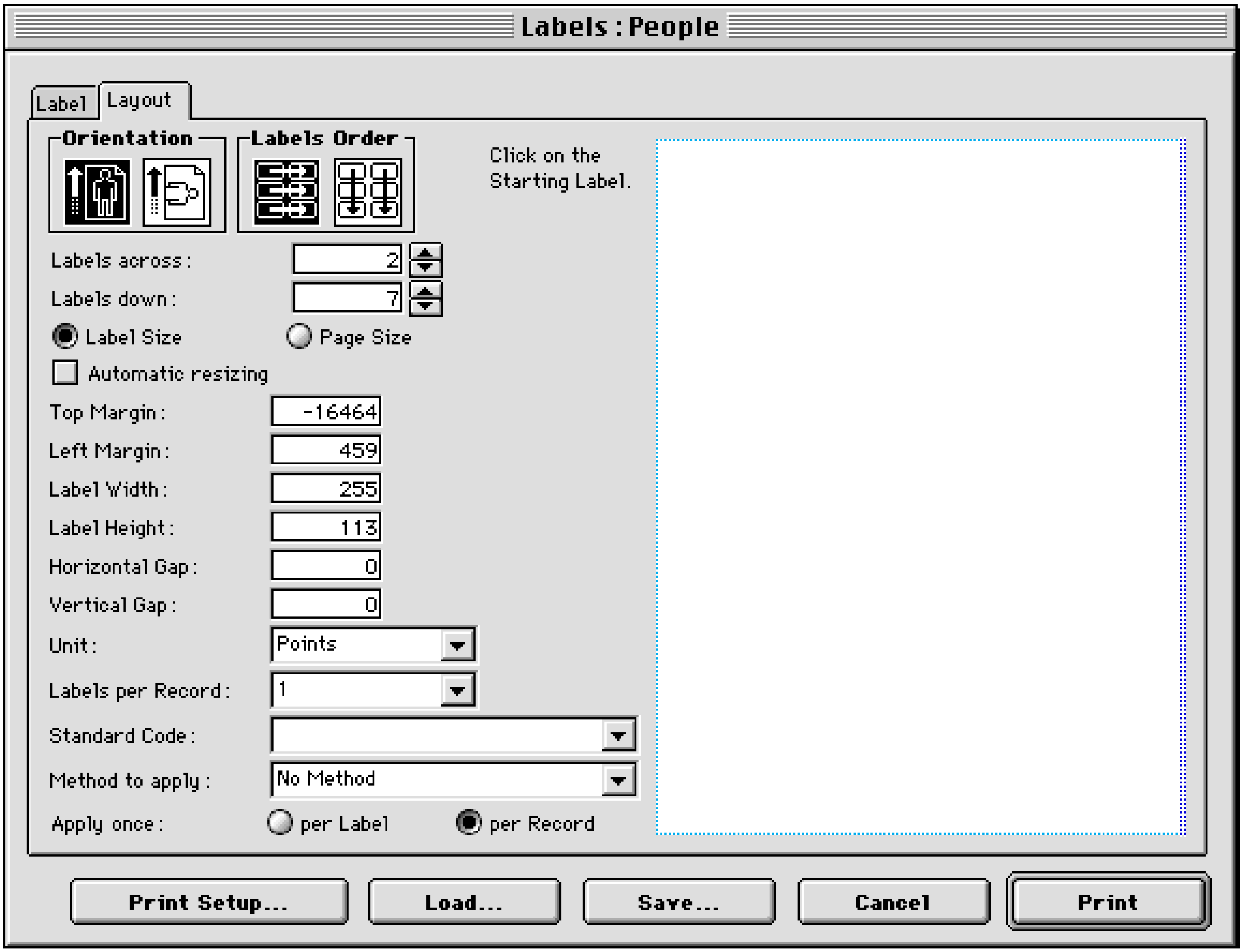
Text attributes areas



Layout Tab

The Layout tab contains controls for printing labels based on the requirements of the printer selected in the Print Manager (Chooser on Macintosh), so that the page can be formatted accurately. The Layout tab contains the following elements:

Labels Page for the [People] table



1. *Orientation and Labels Order buttons*:
   These buttons enable the user to specify the page orientation and the order in which information is assigned to labels. These boxes are used to control the size of labels by specifying the number of labels that appear on your label paper.

2. *Layout preview area*:
   This area provides a reduced view of how an entire page of labels will look, based on the dimensions entered in the Label Wizard. The page preview also reflects the paper size selected in the Print Setup dialog box. The first label on the page can also be selected for printing. The red border indicates the size of the physical page and the blue border indicates the size of the printable area.

3. *Label size and page size radio buttons*:
   These buttons are used to select the label or the page for setting label and page dimensions. If Label Size is clicked, the label width and label height can be entered in the appropriate areas. If Page Size is clicked, values for right margin and bottom margin can be entered.

4. *Margin boxes*:
   These boxes are used to specify the dimensions of the label and the page size, depending on the radio button selected. After the margins of the label paper have been entered, some additional adjustments may be needed so that the label text is centered in the labels. Both positive and negative numbers in the Margin boxes can be used to increase and decrease the margins.

5. *Automatic Resizing*:
   If “Automatic Resizing” is checked, the values in the Label Width and Label Height entry areas are set automatically.

6. *Horizontal gap*:
   This area controls the amount of space between label columns.

7. *Vertical gap*:
   This area controls the amount of space between label rows.

8. *Unit Pop-Up list*:
   This Pop-Up list allows the user to change the units in which the label and label page measurements are specified. Pixels, millimeters, centimeters, or inches can be used.

9. *Labels per record Pop-Up list*:
   This control can print more than one copy of each label. If more than one copy is printed, 4th Dimension prints the copies consecutively rather than making copies of the label pages.

10. *Standard code Pop-Up list*:
    This control specifies the label, page dimensions, and margins by choosing a standard commercial label paper from the Pop-Up list.

11. *Method to apply*:
    This control selects a method that will be run at print time. For example, a method can be executed that posts the date and time that each label was printed.

12. *Apply method once radio buttons*:
    These radio buttons are used to specify whether to run the method once per label or once per record. This control has meaning only if printing more than one copy of each label and executing a method at print time.

13. *File buttons*:
    These buttons provide options for page setup, printing, saving, and loading label design.

Creating a Label

When records have been selected, a template can be prepared in order to print labels.

1. Drag the first field to display in the label from the Fields list to the *Label Preview* area. If the field is in a related table, expand the relating field to display the fields in the related table. The field is added to the *Label Preview* area. Selection handles indicate that it is selected.

2. To concatenate a field to this field, drag the new field from the Field list to the existing field. Otherwise, continue dragging fields to the *Label Preview* area. As fields are added, they can be repositioned by dragging or using the alignment tools in the toolbar.

3. To add a text element to the label, enter the text in the Static Text area and click the arrow. The static text object is added to the *Label Preview* area. After adding the element to the label, it can be repositioned by dragging and aligning it with other objects.

4. (Optional) Using a drawing tool, draw any graphic objects to add to the label. For example, different backgrounds to the “TO:” and “FROM:” sections of the label can be added. Paste a graphic from the Clipboard into the *Label Preview* area.

5. Everything dragged or drawn into the label area is considered an individual object that can be repositioned. All of these objects can be manipulated with the toolbar elements.

6. Click the Save button to save the current label setup as a reusable template.

Specifying the Label Layout

1. Click the “Layout Page” tab to display the layout page of the “Label Wizard”. The design of the label paper can be specified using the entry areas on the Layout page or by choosing a standard design from the Standard Code Pop-Up list. This Pop-Up list contains specifications for a wide variety of standard commercial label sheets.

2. Click the *Print Setup* button to display the “Print Setup” dialog box for the operating system.

3. Choose the desired printer and click the *OK* button. If necessary, the Label Preview area changes to reflect the selection.

4. If appropriate, choose the type of label paper to be used from the Standard Code Pop-Up list. The remaining entry area on the page change to reflect the selected label paper’s characteristics. If necessary, these specifications can be modified.

5. Click the appropriate *Orientation* and *Labels Order* radio pictures. Choose between portrait and
landscape orientation and horizontal or vertical order.

6. Enter the number of labels in each row of the label sheet in the *Labels Across* box and the number of labels in each column in the *Labels Down* box. The Label Preview area adjusts to display the appearance of the labels on a printed page.

7. If the first sheet of label paper is partially used, click on the first blank label in the Label Preview area. 4th Dimension will begin printing labels on the label selected.

8. If desired, choose a unit of measurement from the Unit Pop-Up list to use for entering margin sizes.

9. Enter values to reflect the margins on the label paper. Use the *Label Size* and *Page Size* radio buttons to control whether the entry area is used for the size of the label or the size of the page. The size of the individual labels in the label page preview will adjust to accommodate the margins. For example, if the size of the margins is increased by two inches, top and bottom, the size of the individual labels will shrink to maintain the same number of labels that was specified earlier.

10. (Optional) To print more than one copy of each label, use the Labels per Record Pop-Up list to choose the number of copies to print. The copies are printed consecutively on the label paper. 4th Dimension does not duplicate the entire label page.

11. (Optional) If you want to run a method when the labels are printed, choose the method from the Method to Apply drop-down list.

12. (Optional) If executing a method and printing more than one copy of each label, click either the *Once Per Record* or *Once Per Label* radio button in the Apply Once area. This control has no effect unless using both the multiple copies and method features.

Tutorials

Tutorial #1 - Label (10 Minutes)

1. Navigate to the [People] table list window.

2 Choose the set "Keyword:Training" from the Sets pop-up.

3. Select **Utilities=> Labels...** menu item.

4. Drag and drop the [People]First Name field onto the label preview area.

5. Drag/drop the [People]MI field (middle initial) and drop it onto the [People]First Name field to concatenate the [People]First Name and [People]MI fields.

6. Drag/drop the [People]Last Name field and drop it onto the [People]First Name field to concatenate the [People]First Name, [People]MI and [People]Last Name fields.

7. Locate the [Company]Name field. To do this, find the [Company]Code field and turn down the
   triangle to display the fields in the Company table. Drag and drop the Name field from the Company table onto [People]First Name, [People]MI and [People]Last Name fields. Since we really did not want to do this, press the delete key to remove the [Company]Name.

8. Locate the [Company]Name again and drag/drop below [People]First Name + [People]MI + [People]Last Name. Since the field width is probably longer than the default, we need to stretch the [Company]Name field. To do this press the "Alt + Ctrl" keys on the PC or the "Opt + Cmd" keys on the Macintosh and press the right arrow to stretch. Notice that nothing is happening. This is because the focus or tabable area is still at the field list.

9. Another way to tell is that the label preview area has no line around it. Notice that the field list has a double line around it indicating that the field list is the current tabable area.

10. Click on the [Company]Name field to activate the label preview area. Press the "Alt + Ctrl" keys on the PC or the "Opt + Cmd" keys on the Macintosh and press the right arrow to stretch the [Company]Name field. Turn up the Company field list.

11. Drag/drop the [People]Address field from the People table below all other fields.Since the field width is probably longer than the default, we need to stretch the [People]Address field.

12. Drag/drop the [People]City field below all other fields.

13. Drag/drop [People]State field onto the [People]City field to concatenate [People]City and [People]State.

14. Drag/drop [People]Zip field onto the [People]City field to concatenate [People]City, [People]State and [People]Zip.

15. Click on the *Save*... button and type "EnvelopeLabel" as the file name.

    TIP: It is always a good idea to periodically save your work.

16. Select all the fields by holding down the shift key and clicking on all the fields.

17. Align all the fields vertically using the Vertical Tool.

18. Create equal spacing vertically using the Distribute Vertically tool.

19. Click on the *Save*... button.

20. Type “NASA TechTracS Training” in the text Static Text box and click on triangle to move the static text onto the label template. Position the text in the bottom center of the template.

21. Click on the Style Bold check box.

Tutorial #2: Layout (5 minutes)

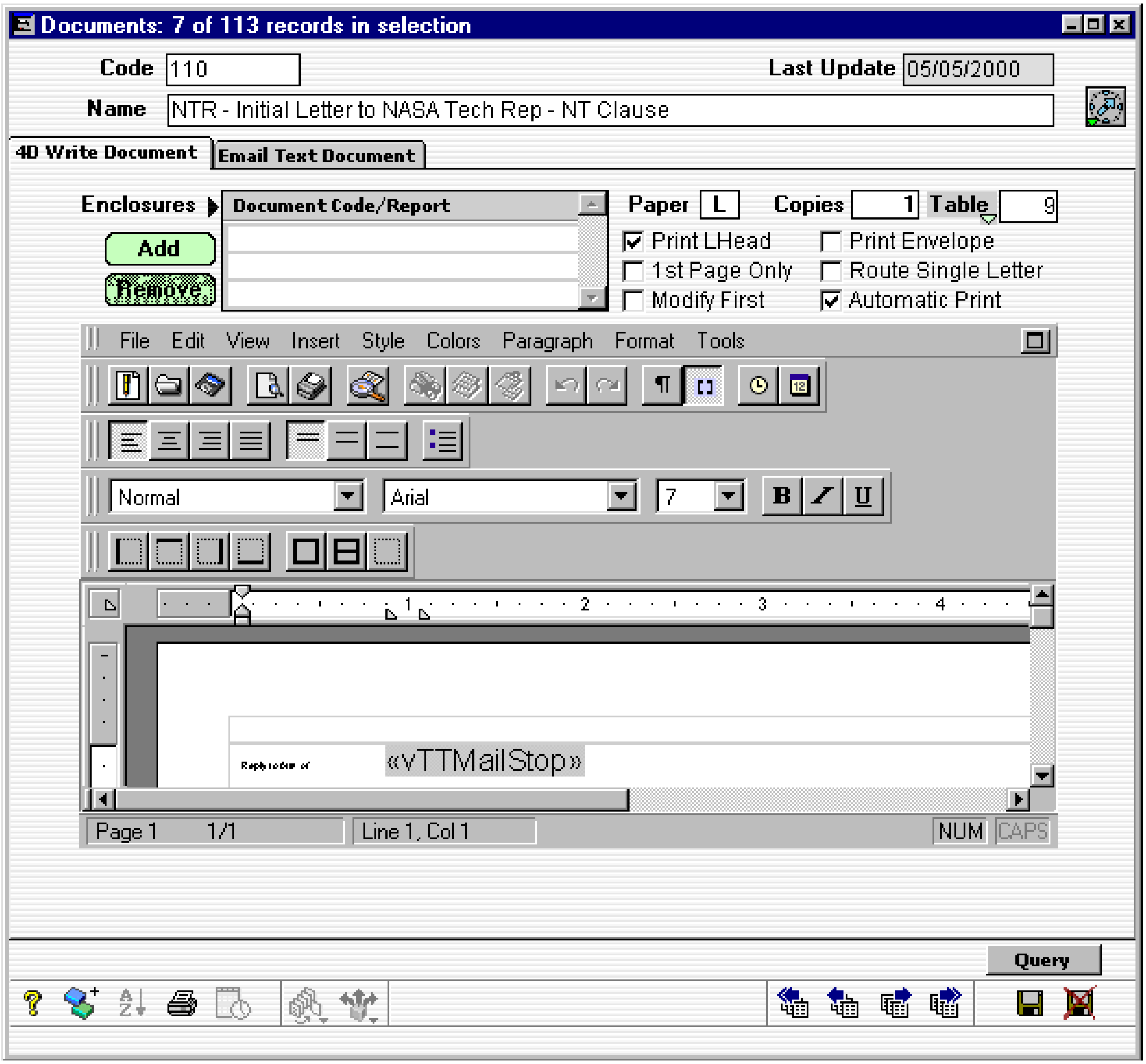
1. Click on *Print Setup* button in the Layout Tab.
2. Click *OK*.
3. Set Labels down: to 6.
4. Set Left Margin: to 31.
5. Set Label Height: to 120.
6. Set Horizontal Gap: to 50.
7. Set Vertical Gap: to 5.
8. Click the *Save...* button.
9. Click on label number 6 to indicate that the first page will start at label position 6.
10. Click *Print* button.
11. Click *Print*..
12. Click *Cancel* button.

4D Write

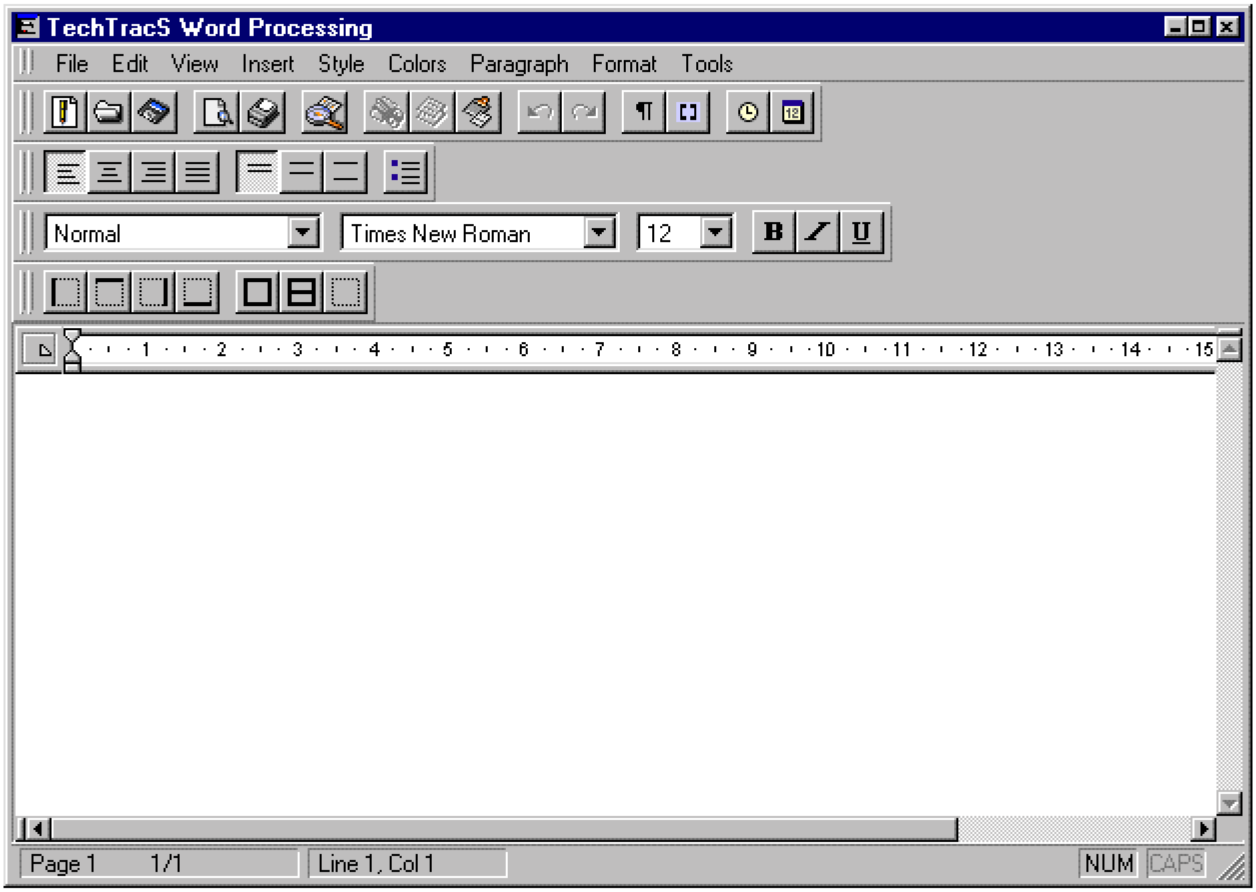
Overview

4D Write is more than just a word processor, because it is integrated with the 4D database. Documents created with 4D Write can be saved with a database record or on a user's disk. 4D Write documents can utilize information from the database record in the form of fields, functions from the database code or variables (NASA TechTracS Expressions) from the 4D environment. A 4D Write area may appear on a database record window or in its own window where it behaves like a stand-alone application.

4D Write in Record Window



4D Write in its Own Window

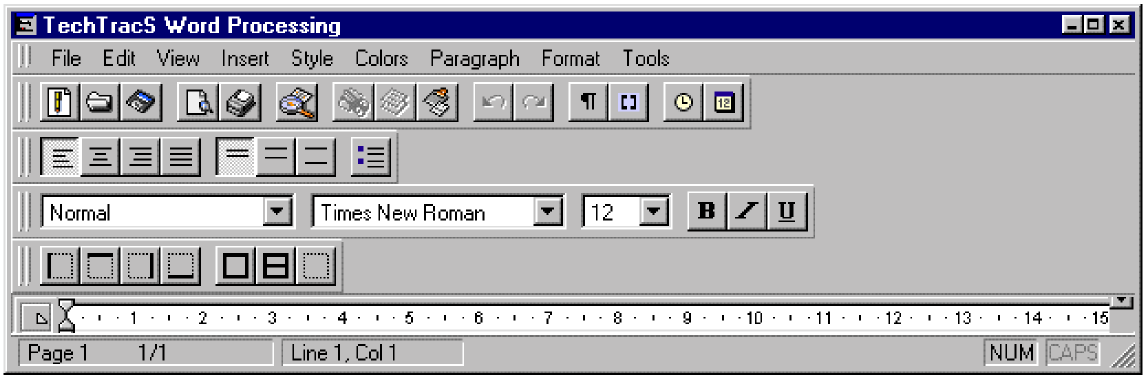


Menus are available in the 4D Write area when operating in an entry form and from the main menu when operating in a 4D Write window.

Margins

At the top of a 4D Write document is a ruler indicating the width of the area in which a user can type. This margin can be changed by the user to accommodate more or less text per line. Simply dragging the small triangles at either end changes the margins.

Ruler

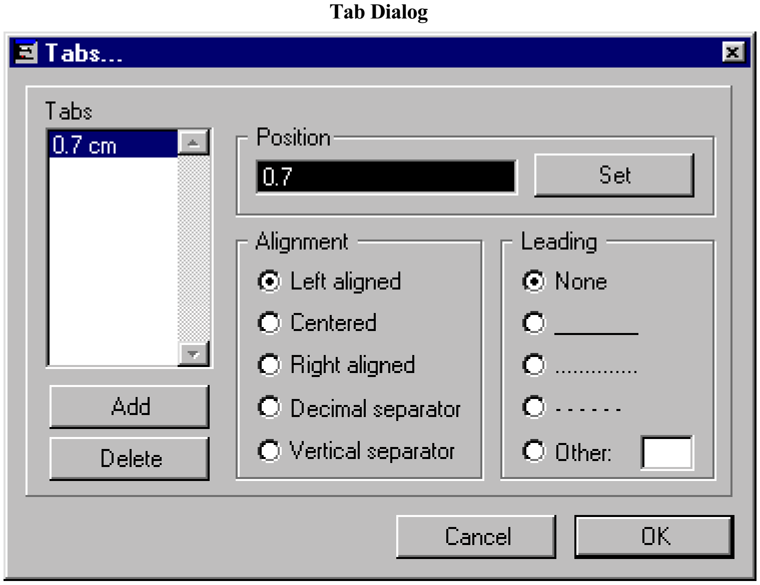


The margins allow typing line after line without pressing the return key. Pressing return creates a new paragraph.

Tabs

4D Write sets default tab stops at half inch intervals, but the user may change this for any paragraph independently by clicking just below the ruler at the desired location of the tab to create. Double-clicking the tab stop marker on the ruler displays specification options for the tab. The options are alignment and leader where alignment is left, right, decimal, or centered, and leader is none or varying dash combinations.

Tab Dialog

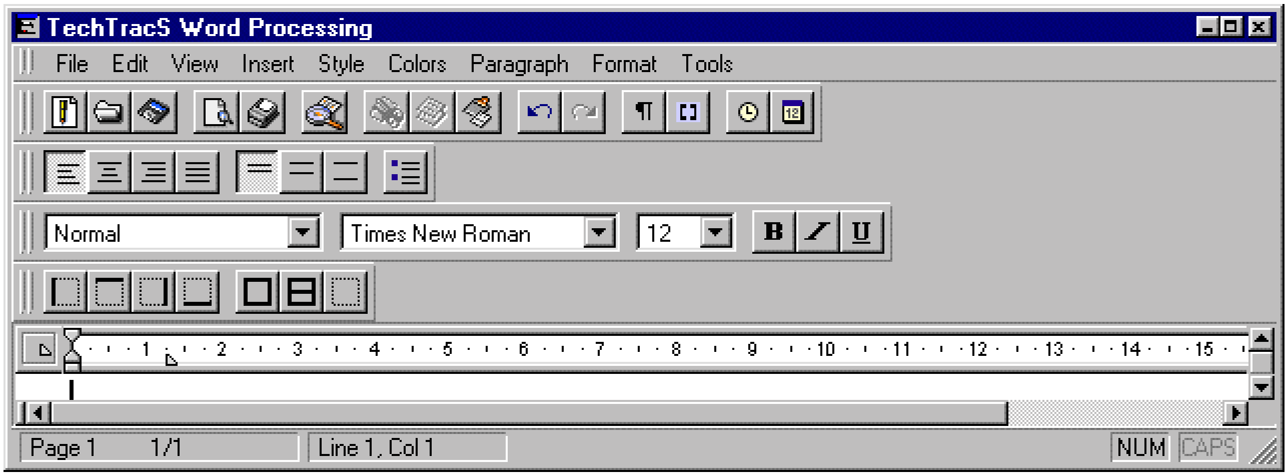


To remove the tab stop, drag it off the ruler.

Paragraphs

Also on the ruler is a first line indent marker that appears as a small up-arrow character with an underline attached to it's base. This character can be dragged into position to indicate where each new paragraph begins.

First Line Indent

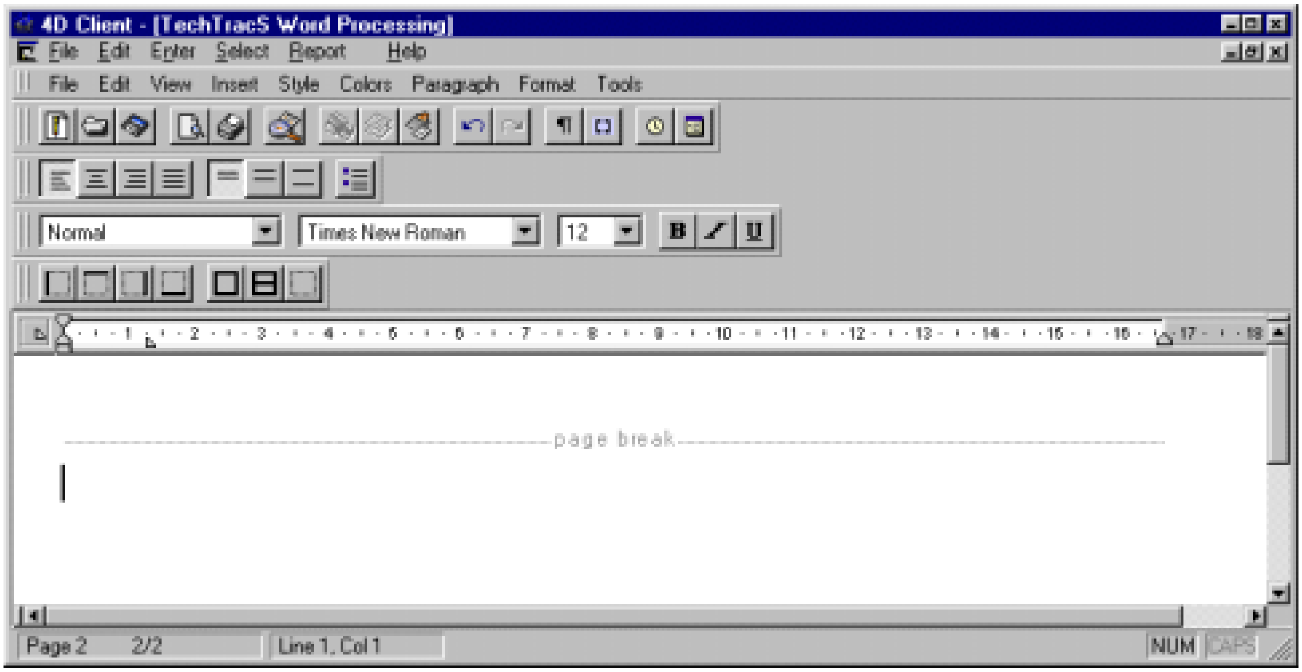


Above the ruler is a format bar for specifying line spacing, alignment, style, font, and bullets.

Page Breaks

Page breaks may be inserted from the **Insert** menu, by selecting **Insert** => **Page Break**... (or Control L)

Page Break in 4D Write

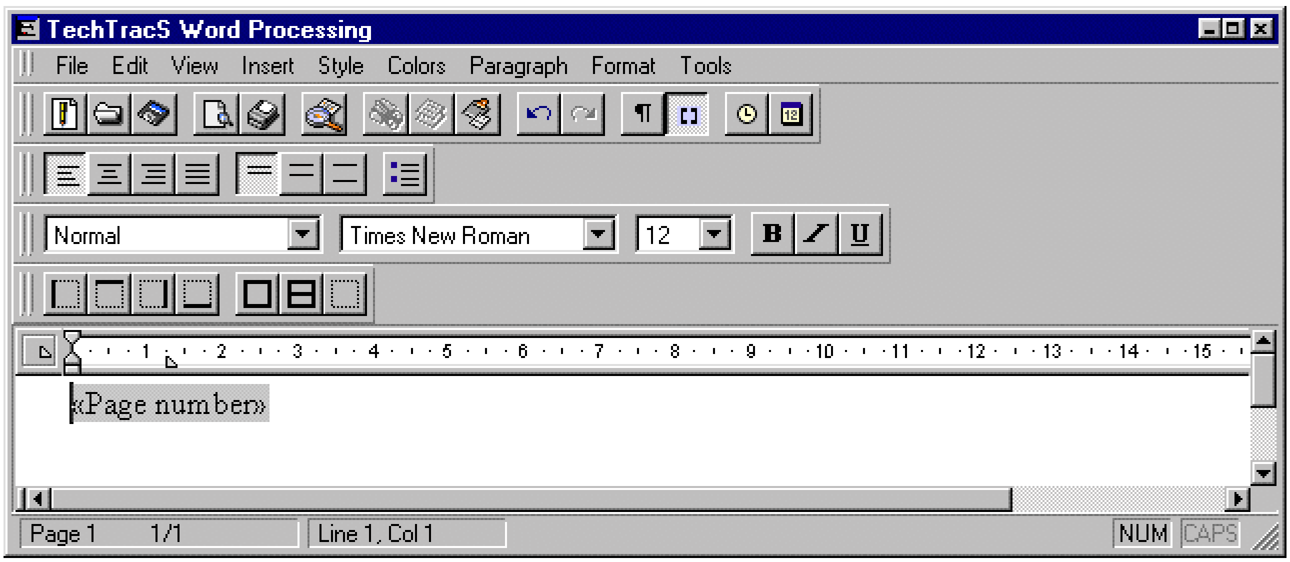


Headers and Footers

A Header and Footer may be specified for the document by selecting "Page" from the "View" menu. This information will be present on every page of the document. By selecting "Page Number" from the "Insert" menu, page number references can be inserted for printing on every page.

From the menu bar, select **Insert** => **Page Number**...

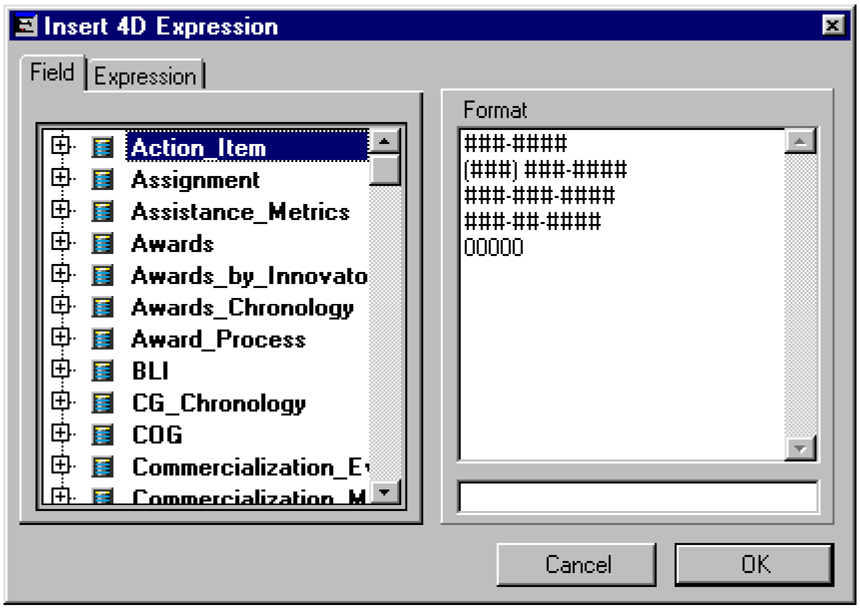
Page Number



Inserting Data

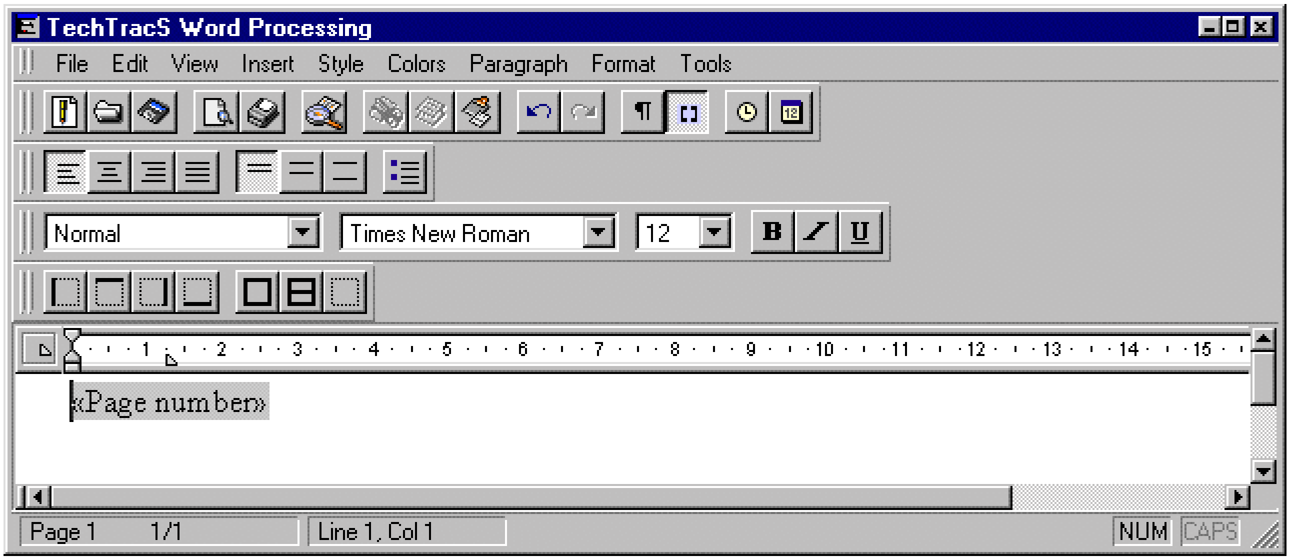
Fields and expressions may be inserted into a 4D Write document as references or as values frozen at the time the document is created. To insert a field, either select **Insert => 4D Expression...**

Choose Field

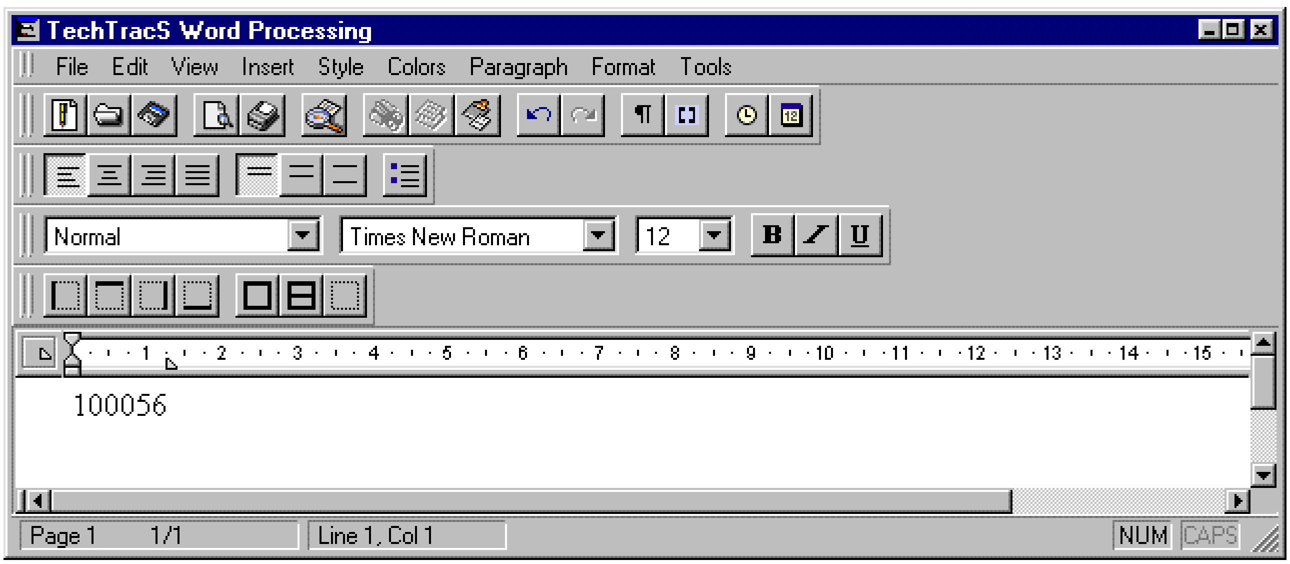


To see the fields as references, select **View** => **References** from the **Database** menu. As references, the fields will be enclosed by these two symbols, "<<" and ">>". As references or values this data is dynamic and will vary upon the current record of the database for which the document is printed. To change the references back to values, simply go back to **View => References** and click references again.

Show References



Show Values

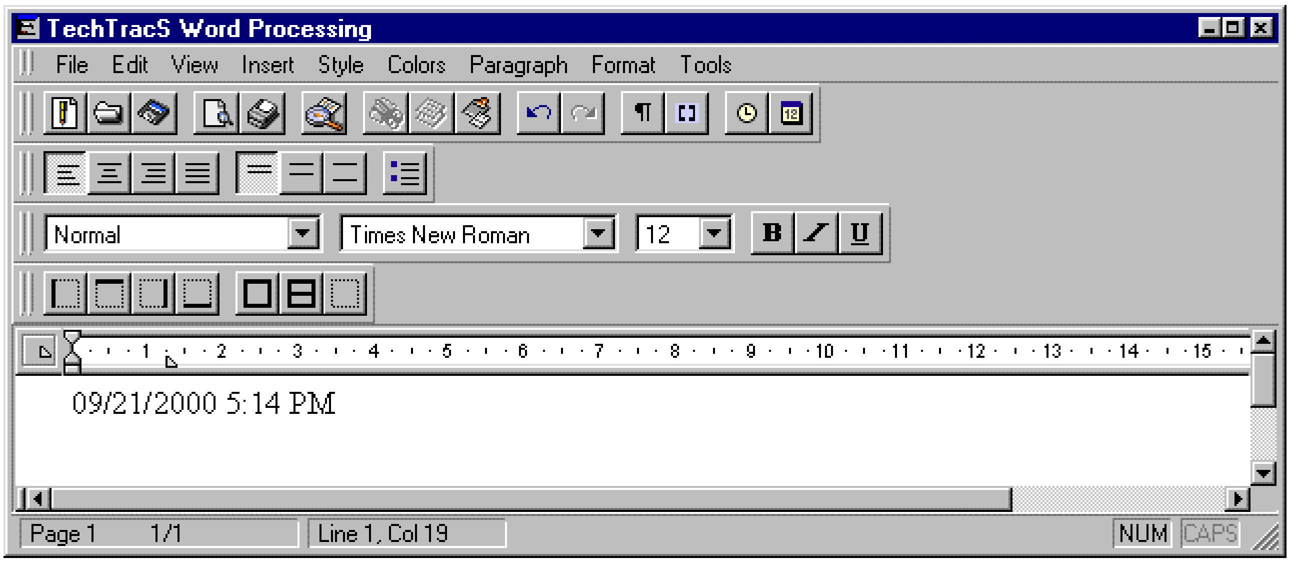


To make the document static and forever unchanged by the database, select **Format** => **Freeze Document** from the **Database** menu. This operation cannot be undone.

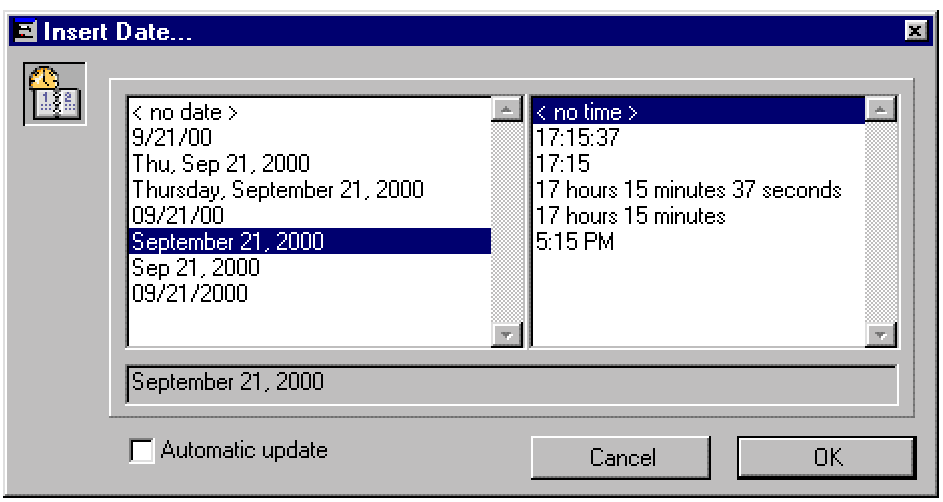
Inserting Expressions

In addition to fields, expressions can also be inserted into a 4D Write document. From the **Database** menu, **Insert** => **Date and Time**... , **Insert** => **Page Number**... are available insertion options. Pictured below are implementations of the aforementioned menu options and the results when selecting **Database** => **Show Values** from the **Database** menu.

Current Date



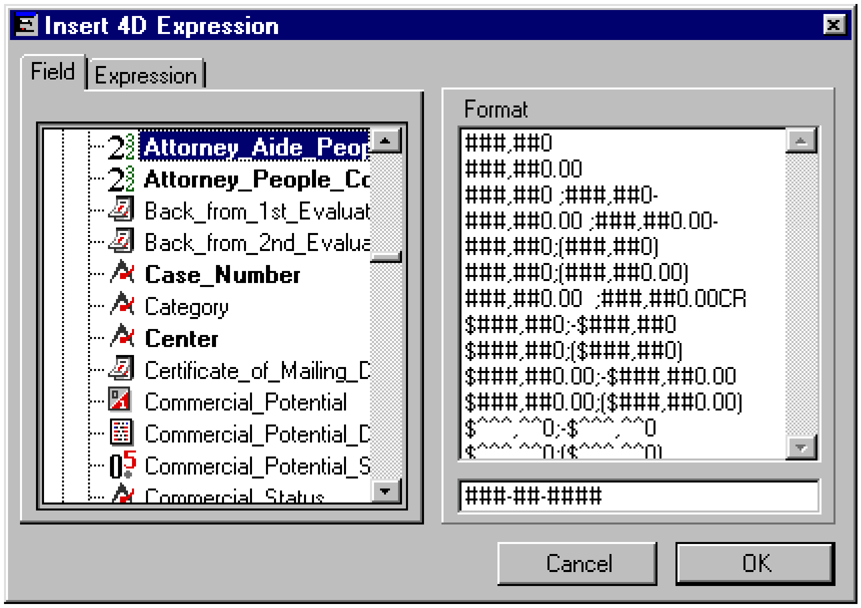
Insert Date



Formatting Expressions or Fields

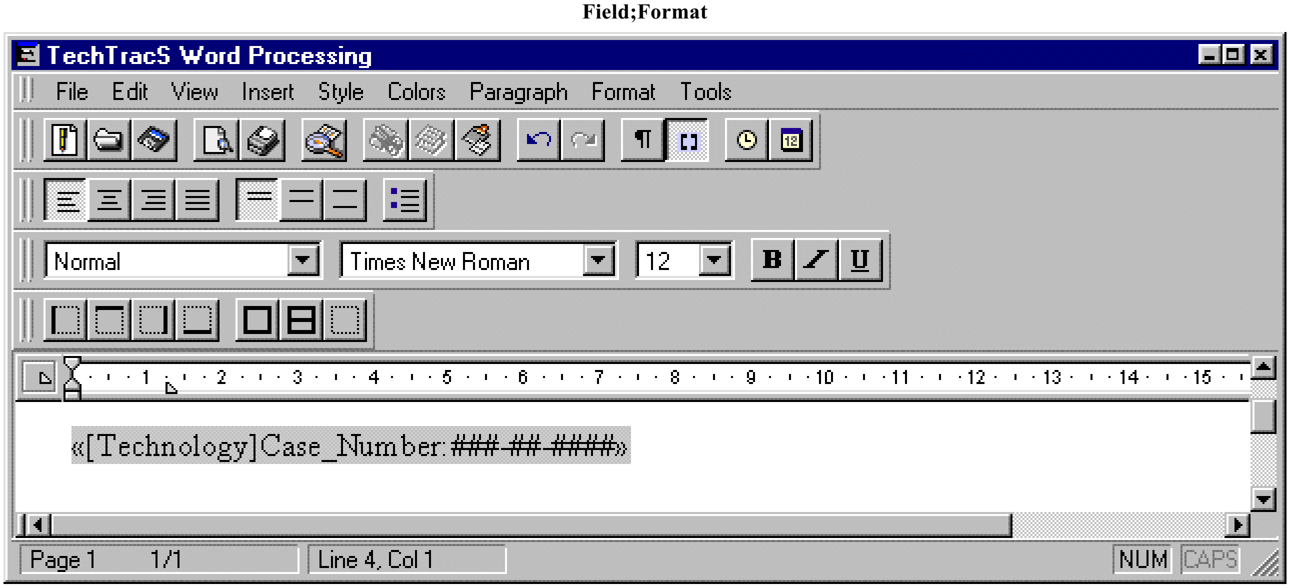
By double clicking on an expression or a field (except for Date and Time), a format can be selected from the list of standard NASA TechTracS formats.

Choose Format Dialog



After selecting the format, the field will be displayed in the document followed by a semicolon and the format.

Field;Format



Templates

Selecting the **File** =>**Save As Template** from the **File** menu will save all of the information in the current document to be reused for every new instance of the document. Selecting **File** =>**New** from the **File** menu will allow the replacement of the template information in a given document. In a non-standard document, spaces are used for formatting. Sections of the template can be deleted where necessary for any given document.

The template option is not available in a 4D Write External window such as the NASA TechTracS Word Processing module. This is because the template is stored with the input form where it resides. For example, the [Documents] table in NASA TechTracS has a 4D Write area on it's input form.

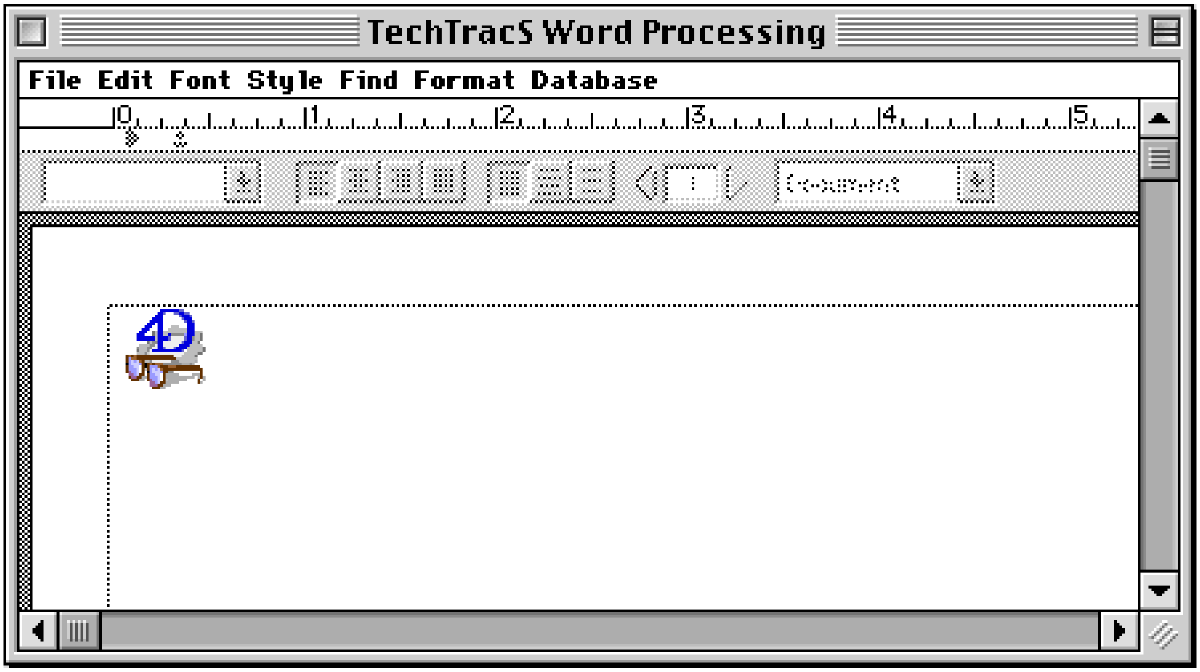
In the [Documents] table, every new record comes with the same template information loaded into it. The user can then decide which parts of the template are necessary and add individual content to the document. If the template is empty, new records will always appear empty upon creation.

From the **File** menu, select **File** =>**Save As Template**... to display the standard Save File dialog. Click the *OK* button to replace the existing template for this form.

> NOTE: All NASA TechTracS users get the same template information for this form for every new record created.

Pictures
Pictures can be pasted into 4D Write documents from the clipboard.

Picture Pasted into 4D Write



Pictures can be positioned on the page horizontally by clicking and dragging them

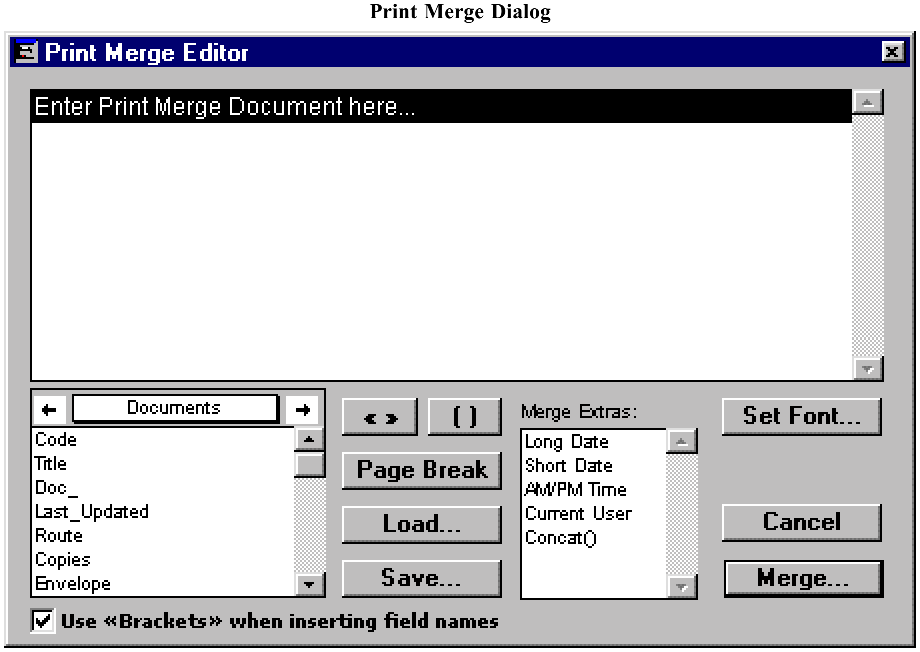
Printing

There are two methods to printing 4D Write documents from the 4D Write window: 1) Print Document, 2.) Print Merge. Print Document is useful when you have a document that does not rely on having a current record (no field references or NASA TechTracS expressions that rely on records) available or when you want to print a document of a single record.

Print Options from the File Menu

Print Merge is useful when you need to print the same document for multiple records. After choosing **File** => **Print Merge...**, you have the options of selecting a table, sorting (*Sort...*), searching (*Search...*), canceling (*Cancel*), and printing (*Print*). When the *Print* button is clicked the Print Dialog is displayed. After the user clicks the *Print* button on the Print Dialog window, the current 4D Write document is printed out for every record selected for the Table chosen.

Print Merge Dialog



4D Quick Report Editor

Overview

The Quick Report editor is a powerful report generation tool available to the user in NASA TechTracS. From any table in the database the user may report on a selection of records in any format desired. The reports may contain calculations, break areas, and formulas. The formula editor gives the user access to the 4D Language as well as the NASA TechTracS special procedures to manipulate data for the current report. Fields can be shortened, lengthened, concatenated or mathematically altered to get the desired output. Reports can be formatted with font, size, style, and sorting on multiple levels. The user can also specify headers and footers in the quick report with text entries or the insertion of special codes for page number, date, and time. Quick Reports can be relational allowing included fields in any quick report from any related table.

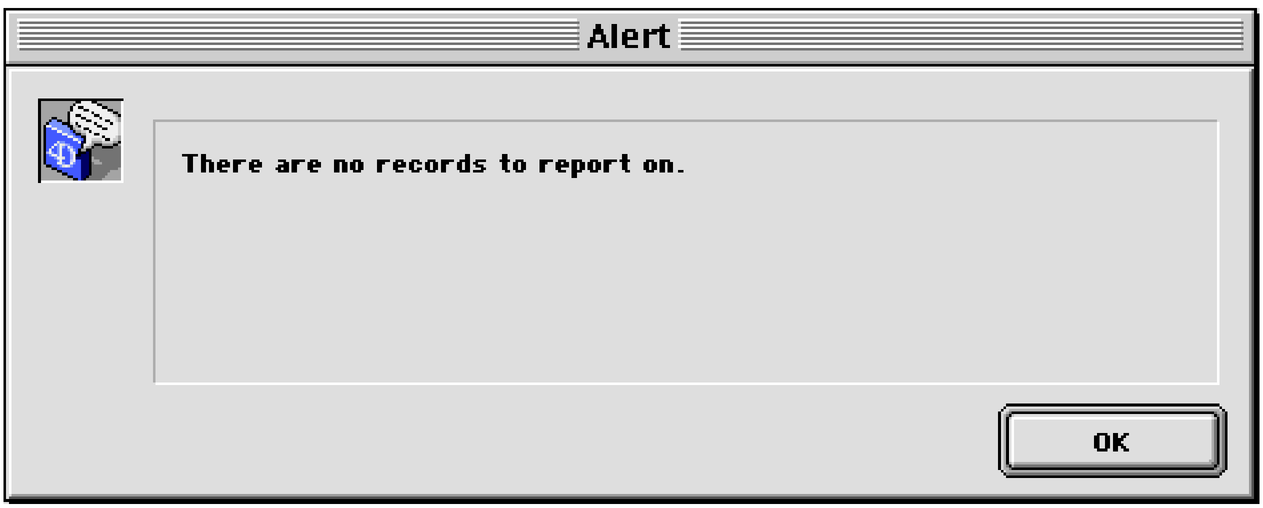
Quick Reports can perform complex tasks that otherwise require lengthy programming effort. Because of it's horizontal and vertical processing, the Quick Report Editor can create Cross-tabulation reports. These reports may be saved to a user's disk for later use or simply used one time and then discarded.

Creating a New Quick Report

Before designing a Quick Report, you must create a selection of records and be in the List window. Next, choose Quick Report from the **Report** => **Quick Report...** menu or click on the Report icon in the List window. At this point, the Quick Report editor is displayed. If an existing report is displayed, choose **File** => **New** from the **File** menu to begin a new blank quick report.

NOTE: If there are no records in the current selection, an Alert will be displayed indicating "There are no records to report on."

Quick Report Alert Dialog



Loading and Saving a Quick Report

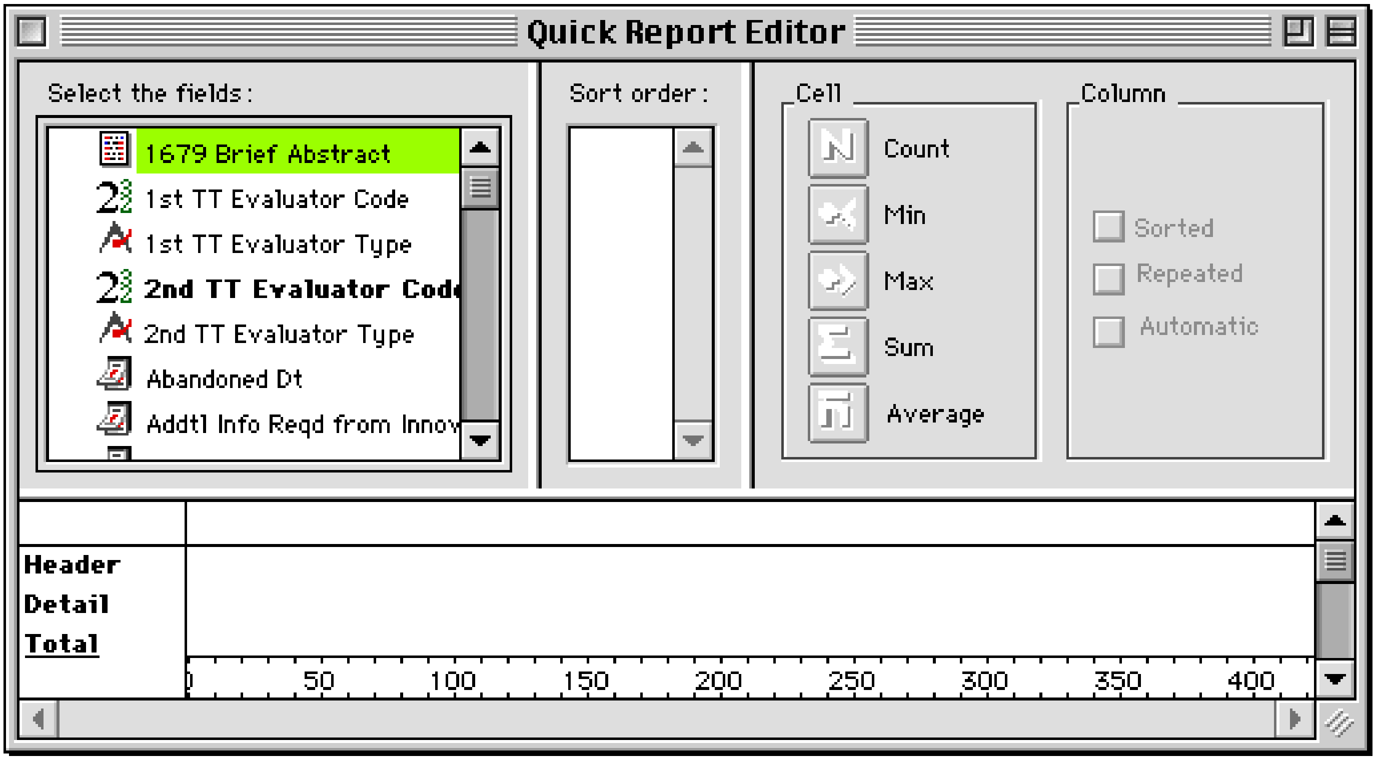
To save the Quick Report, select **File** => **Save** or **File** => **Save As..** from the **File** menu. To load an existing report, select **File** => **Open** from the **File** menu.

NOTE: Quick report files in 4D for Windows are denoted by the file extension ".4QR".

TIP: Quick Reports can be shared between Mac And PC users. To share a quick report created on a Mac to a PC user, the PC user must have the extension ".4QR". To share a quick report created on a PC to a Mac user, the user must convert the file using the utility 4DFileTypeConv. The utility can be found on the NASA TechTracS support web site under NASA TechTracS Utilities in the Software section.

Interface Elements of the Quick Report editor

Quick Report Editor



- **Fields list:** displays fields in the current and related tables.

- **Sort list:** displays the sort order assigned to the report and indicates whether each sort level is ascending or descending. If the report contains summary calculations from groups of records, sort the current selection on one or more fields. The user change the order of fields in the sort list by dragging the field name to the desired position in the list.

- **Quick Report area:** use this area to design the report by dragging fields, adjusting column widths, and adding or deleting breaks. Summary calculation buttons: use these buttons to place summary calculations in the Break and Total areas of the report.

- **Column properties:** use these check boxes to set the following characteristics for each column in the report: automatic width, Column Header, Detail, Break, and Totals rows repeated values in a Break column, and whether the column will be sorted.

- **Sorted:** to sort records on the selected column.

- **Repeated Values:** use this check box to tell the Quick Report editor to repeat the values in a Break column. If not selected, the Break value is displayed only once.

- **Automatic Width:** Click to request that the Quick Report editor compute the width of the selected column based on the maximum length of the contents of the column. The sizing is done only at the time the report is printed. We can check this option for each column individually. The check box does not refer to the entire report. If the Automatic Width check box is not checked for a column, the user may modify that column's width by dragging column dividers.

- **Column dividers:** indicate the boundaries between columns of the report.

- **Right margin marker:** indicates the right margin of the report. The right margin marker is meaningful only when no columns have the Auto Column Width check box selected. In order to view the right margin, scrolling horizontally may be necessary.

- **Column header:** displays the names of fields or formulas added to the report.

- **Row label bar:** identifies rows Header, Detail, Break, and Total.

- **Header row:** contains information that appears in the printed report above the records. The Quick Report editor automatically places field names in the Header row, but we can modify its contents.

- **Detail row:** prints information from individual records and will be repeated in the printed report for each break.

- **Break and Totals rows:** These rows display summary calculations and any associated labeling. The Break row displays summary calculations for each subgroup in the report and the Totals row displays summary calculations obtained from all records in the current selection.

- **Cells:** the intersection of a row and a column.

Using Related Fields

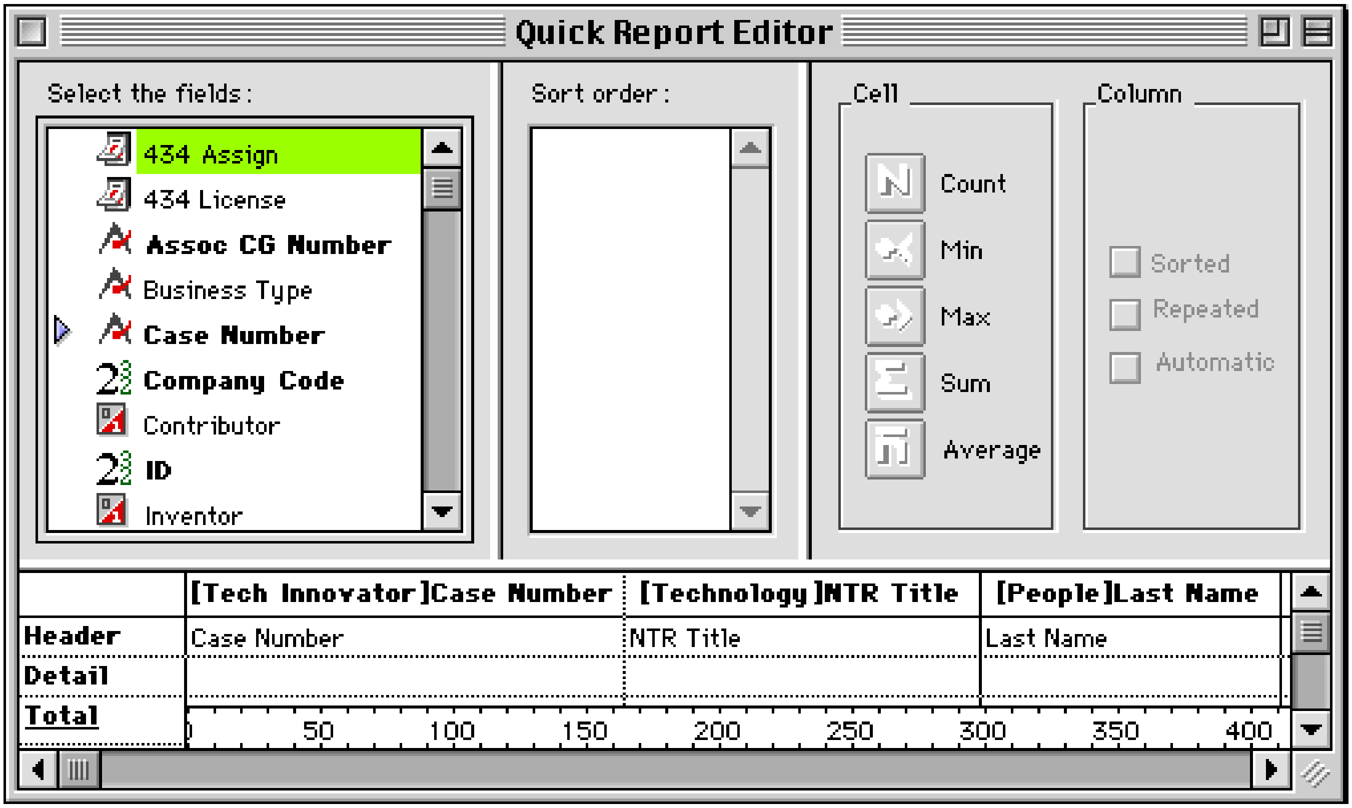
NASA TechTracS is comprised of many tables which may or may not contain all of the information needed for a report. If the table currently being viewed does not have a field needed for a report, get the field from a related one table. If it is found that a report needs fields from a related many table, the report can be moved to that table. The tables in NASA TechTracS are linked via a key field for each relationship. The primary key for each table identifies each of its records as unique while the foreign key or keys for a table are not unique and serve to link the table to one or more related one tables. The names of fields in related tables can be viewed by expanding the foreign key fields. A foreign key field has a plus sign (on Windows) or a triangle (on Macintosh) to its left.

NOTE: Fields from a related many table cannot be directly used in a quick report. For example, if you are creating a quick report for the [Technology] table, you cannot add information about the innovators from the [Tech Innovator] table using the field lists. In this case however, there is a NASA TechTracS expression called TechInnovators that can be used to add the innovators on the report from the [Technology] table. See NASA TechTracS Expressions section 5.04 for more information.

TIP: See QRList for how to add related many table data to a quick report.

Pictured below is an example of a quick report from the [Tech Innovator] table including fields from the [Technology] table and [People] table:

Related Fields in a Quick Report



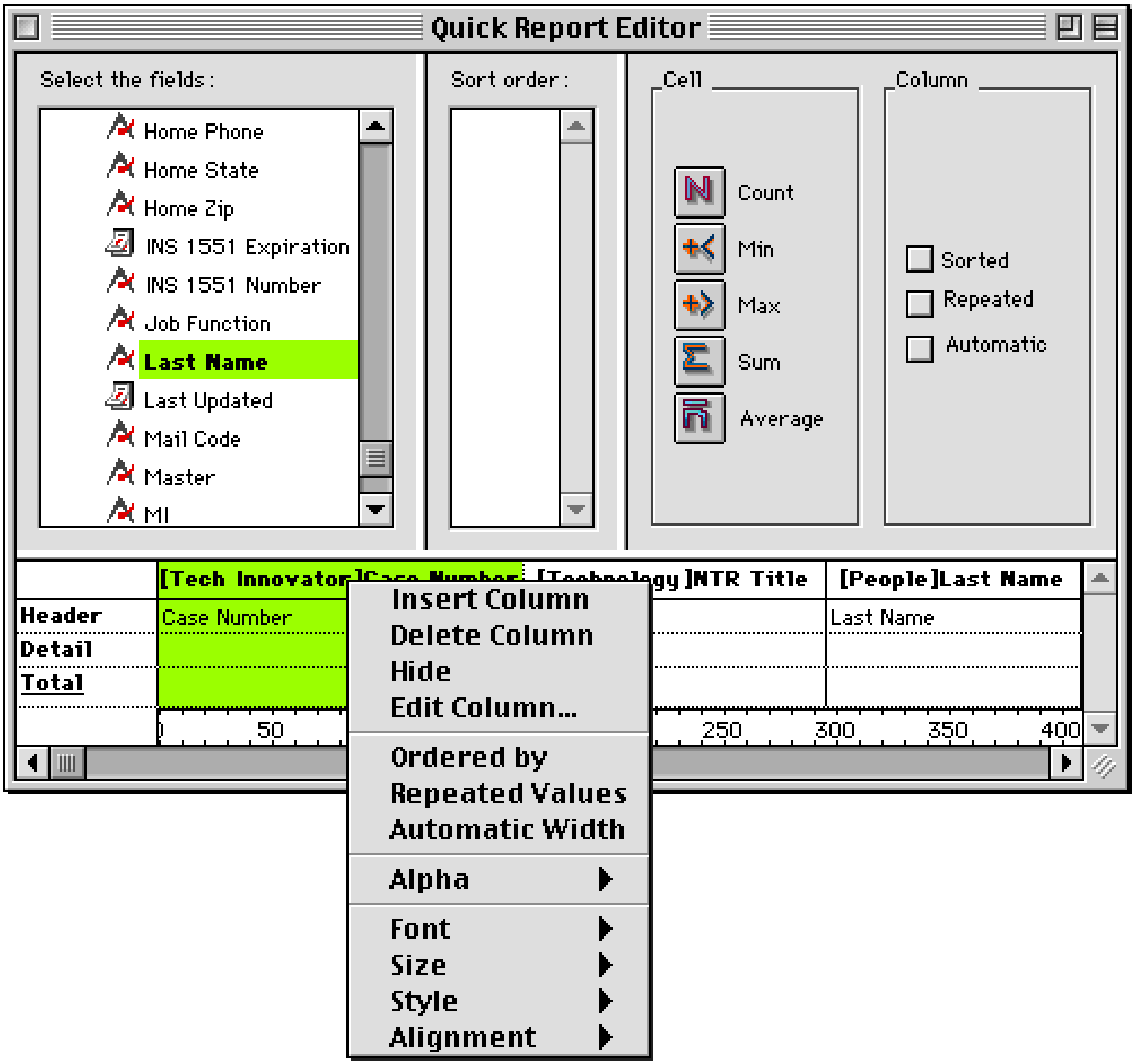
Resizing Areas in the Editor

The various lists and display areas in the Quick Report Editor can be resized. Areas that can be resized are bordered by a raised line. To resize an area in the editor, move the pointer over the area border (the pointer changes into a resizing pointer) and drag the border up or down, or left or right to resize the area.

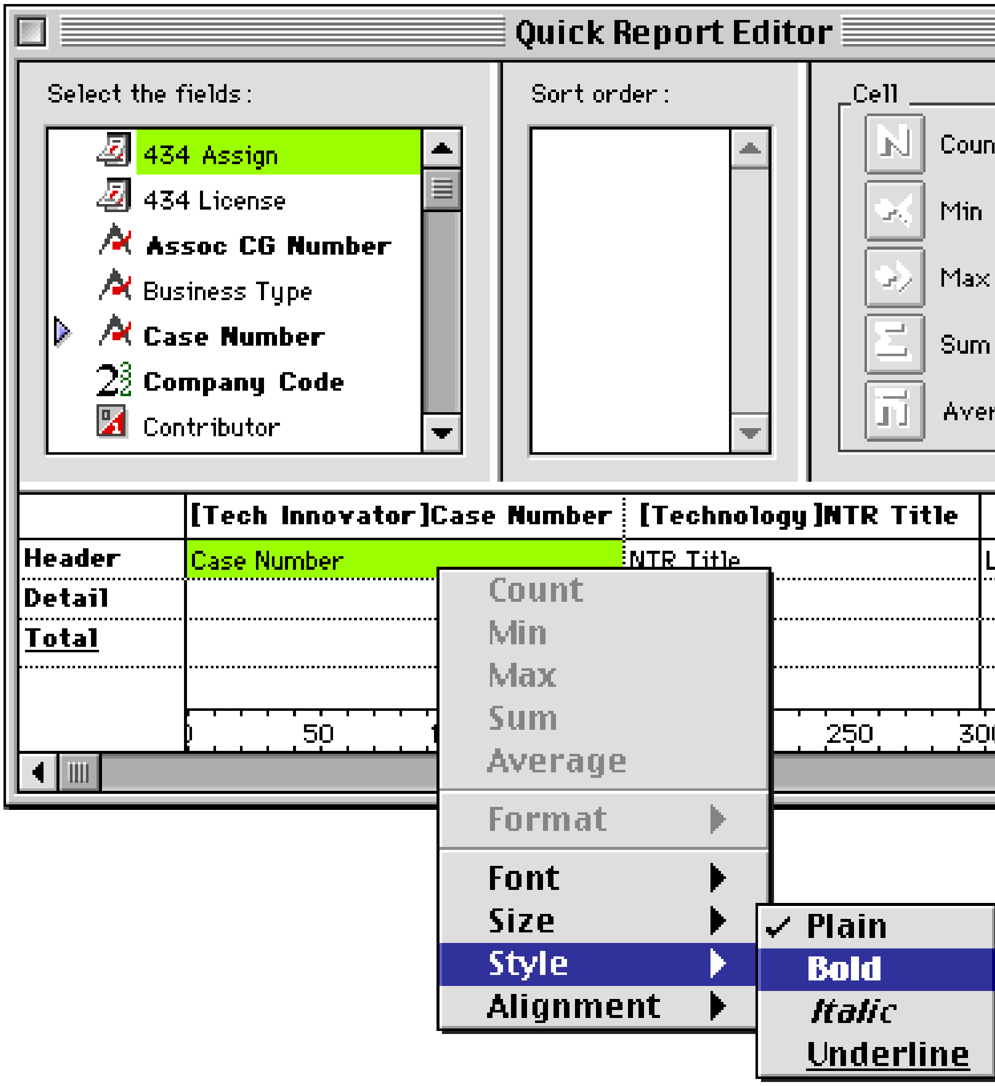
The Quick Report Pop-up Menus

The Quick Report Editor has hidden pop-up menus that allow easy access to certain operations. There are separate pop-up menus for row, column, and cell operations. To use a pop-up menu, position the pointer in a cell, a row label, or a column heading and hold down the mouse button. Menu commands that are inappropriate for the particular row, column, or cell are disabled.

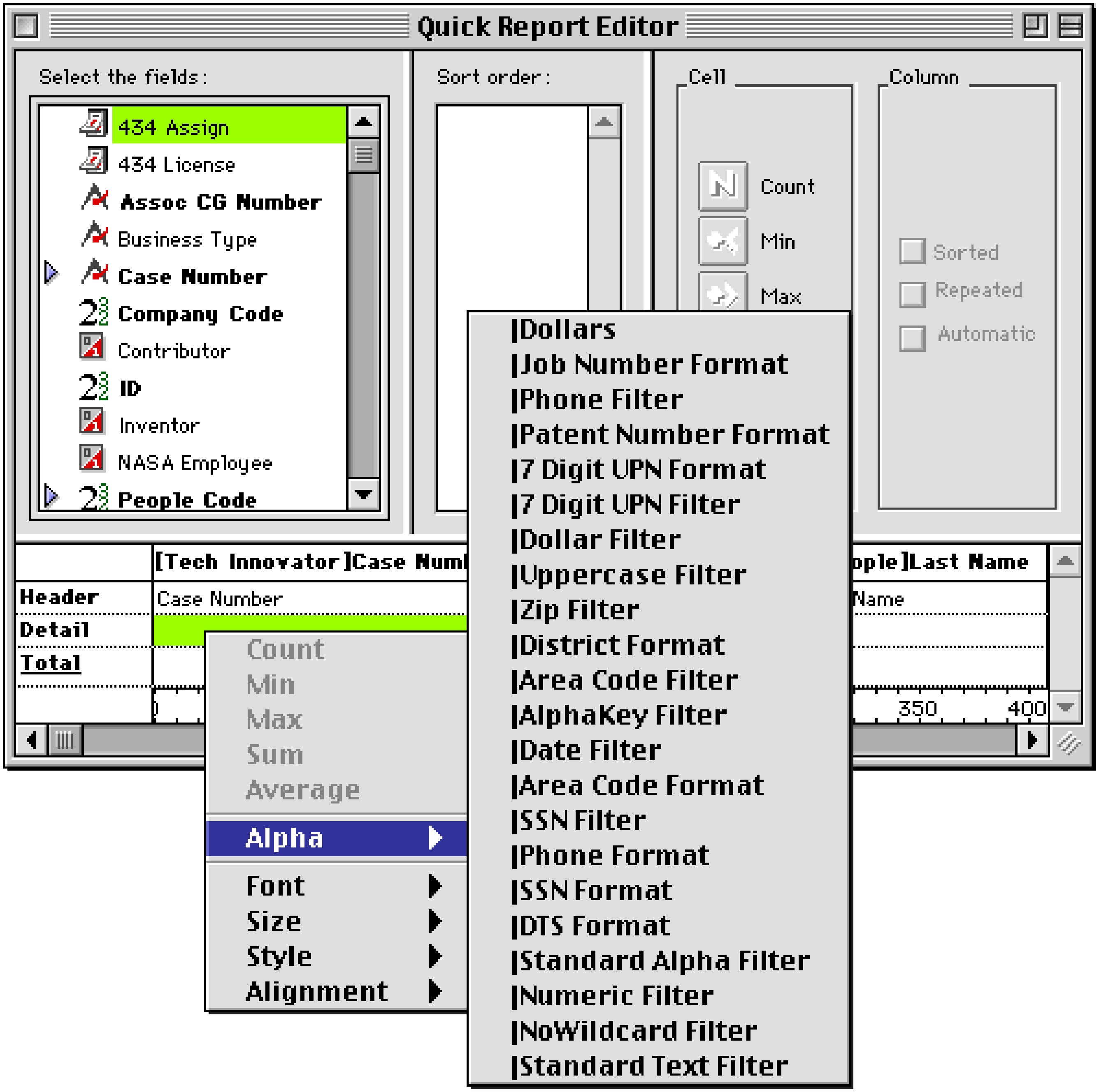
Pop-up Menu from Column Heading



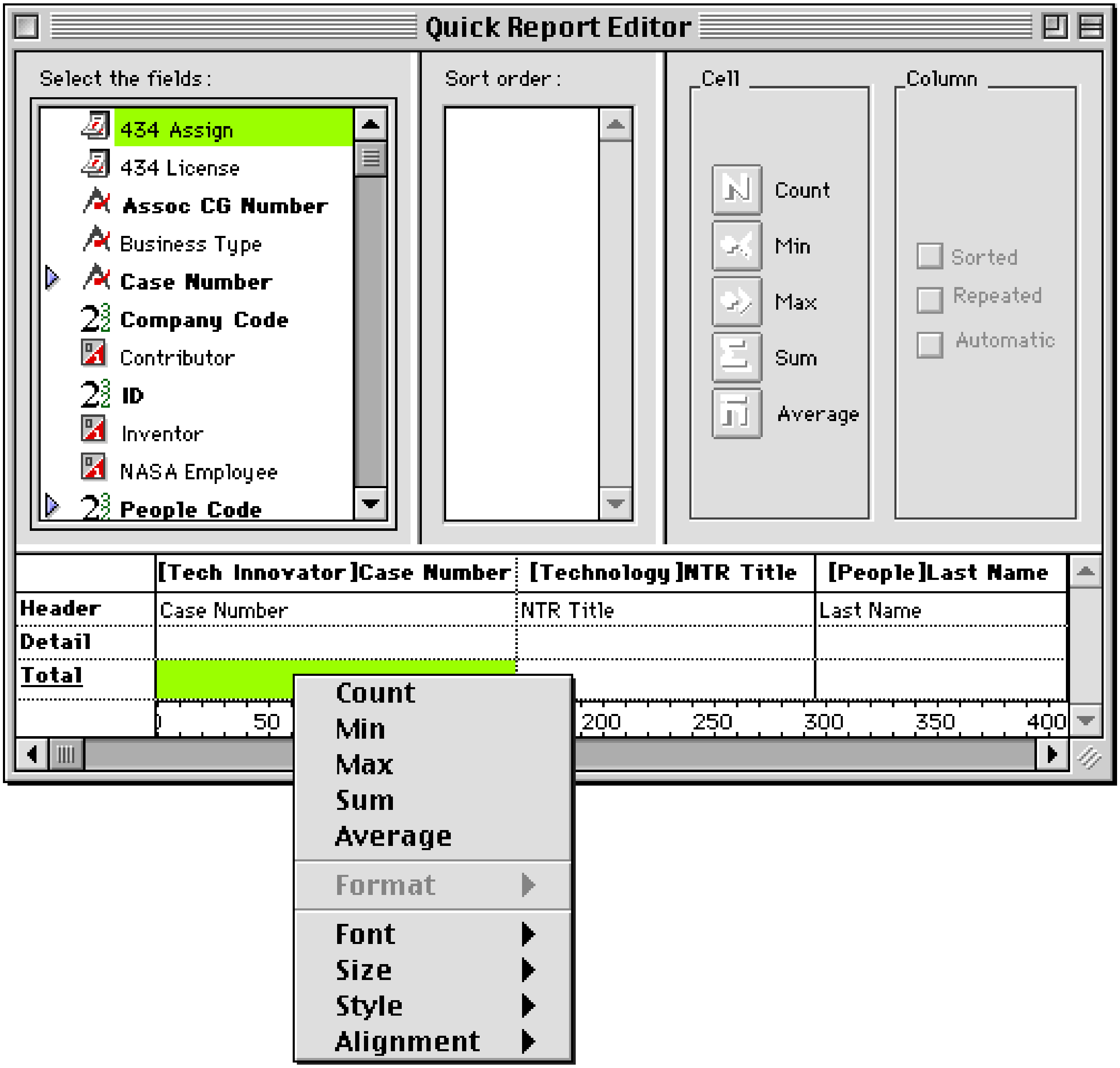
Pop-up Menu from Header Cell



Pop-up Menu from Detail Cell



Pop-up Menu for Total Cell



Selecting Rows, Columns, and Cells

- To select a row, click on the Header, Detail, Break, or Total markers on the row label bar to the left of the Quick Report form or click in a row to the right of all columns in the Quick Report form.
- To select a column, click above the Header row of a column.
- To select a cell, click the cell.

Adding and Modifying Text

The user can add or modify text in the quick report form to label parts of the report. For example, if requesting summary calculations, label them by adding text to other cells in the Break and Total rows. Add and modify text as follows:

- Edit the text that 4D automatically adds to the Header row of the report.
- Insert text in empty cells of the Break and Totals rows.
- Insert the value of a Break field in the Break rows.
- Specify the font, font size, justification, and style for any text that appears in the report

Adding Text

To add text in a report cell:

- Click twice on an empty cell in the quick report form. A text insertion point appears in the cell. If entering a label for a summary calculation, select another cell in the same row as the cell containing the calculation icons. Text cannot be entered into the same cell that contains summary calculations.
- Type the text in the cell.

Modifying Text

To modify text in a cell:

- Drag across the text in the cell to modify.
- Type the new text in the cell.

Specifying Font Attributes

While designing the quick report, the user can specify different fonts, font sizes, justification, and styles. Apply these specifications to text, data, and summary calculations within rows, columns, or cells in the quick report. If assigning specifications to the Detail row of the report, results cannot be seen until a preview or print of the report. Specify font attributes using either the Quick Report menu commands or the Quick Report pop-up menu.

To specify font attributes using the Quick Report menus:

- Select the column, row, or cell where we want to apply the font.
- Choose a font from the **Font** menu or choose a font size, style, or justification from the **Style** menu.

NOTE: 4D applies the font to any text, data, or summary calculations that appear in the selected area.

To specify font attributes using the Quick Report pop-up menu:

- Hold down the mouse button on the row label, column header, or cell to which we want to apply the font attributes. A pop-up menu appears.
- Use the Font, Size, Style, or Alignment hierarchical menus to change the font attributes as desired.

Adding Columns

Create columns by dragging field names from the Fields list into the quick report area.

To Add a Column

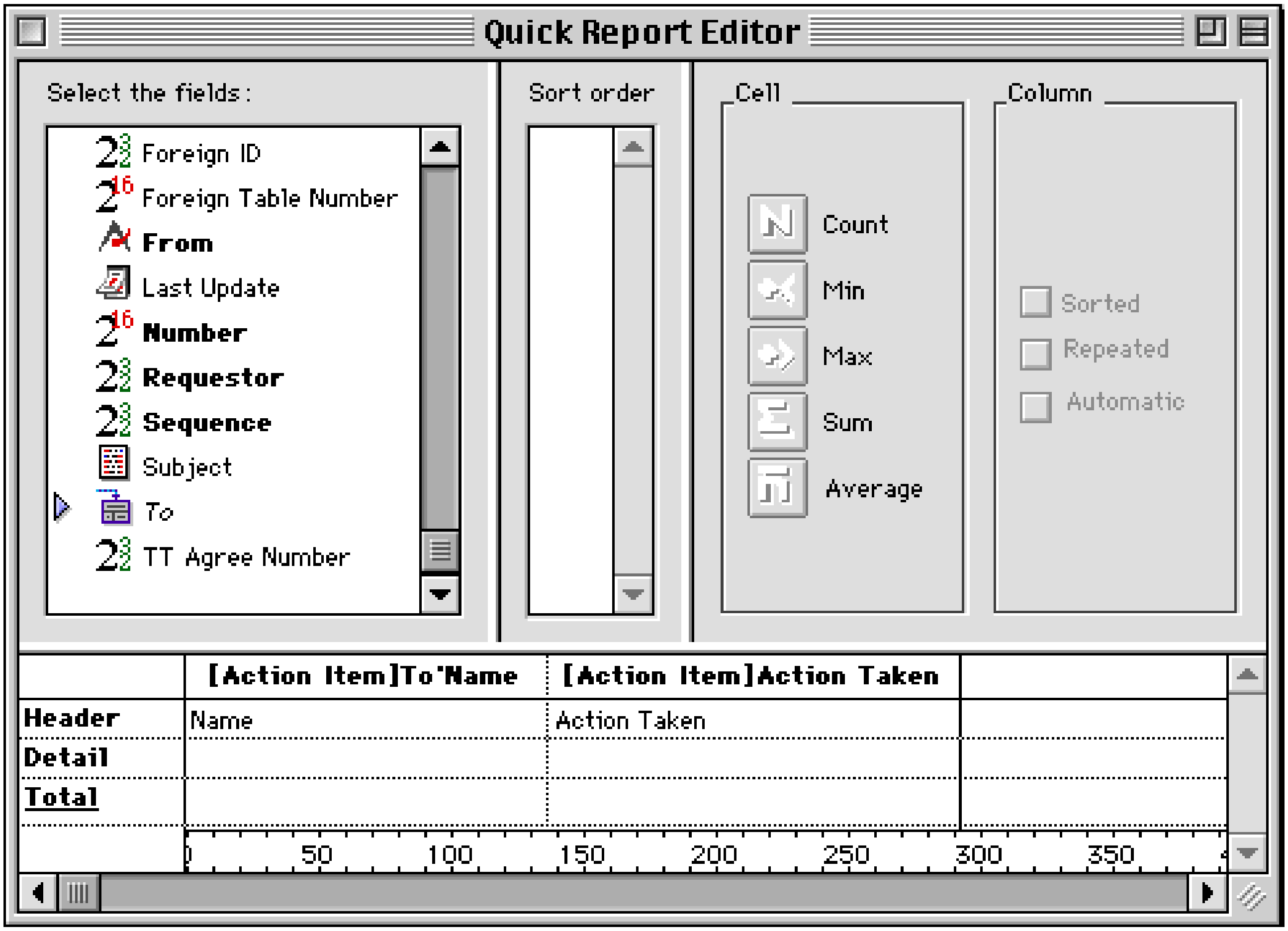
- Drag the name of a field to the right of existing columns in the Quick Report area and release the
  mouse button. 4D creates a column for the field and places the field name in both the column header and the cell in the Header row.

By default, 4D prints the field names as column heads at the top of each page in the quick report.

If a subfield is used in a quick report design, the report will list all values of the subfield for each parent record. Subfields cannot be used for sorting. Subfields are denoted by a blue line with an arrow pointing to a table icon  .

NOTE: NASA TechTracS uses very few subfields. The [Action Item] table has one subfield ([Action Item]To).

Subfield in Quick Report



Inserting a Column

To insert a column using the Quick Report menu bar:

- Select a column.
- From the **Edit** menu, select **Edit** => **Insert Column**... or Hold down the mouse button to display the Quick Report pop-up menu and choose "Insert Column".

4D inserts a blank column to the left of the column selected. Then assign a field to the empty column by dragging a field name to it, or assign a formula to the column.

Deleting Columns

To delete a column using the Quick Report menu bar:

- Select the column to be deleted.
- From the **Edit** menu, select **Edit** => **Delete Column**... 4D removes the selected column from the
  quick report form.

To delete a column using the Quick Report pop-up menu:

- Hold down the mouse button on the column header. The Quick Report pop-up menu appears.
- Select "Delete Column" from the pop-up menu.

Replacing Columns

Columns can be replaced in the quick report by dragging another field over it or replacing the field with a formula.

TIP: To replace the field with a formula, double-click on the column.

Sizing Columns

The Quick Report editor sizes columns automatically (as reflected in the Automatic Width check box). It sizes each column based on the maximum length of data displayed in the column and any labels typed into the column. The Quick Report editor sizes columns only at the time the report is printed. To view the widths of each column, preview the report to the screen.

Because selecting the Automatic Width check box changes the width of a column based on the maximum width of data in the records being printed, selecting different records can change the size of the columns. Columns can be resized manually after deselecting the Automatic Width check box. When a column is set manually, text in the column wraps within the specified area.

Manually Resizing a Column

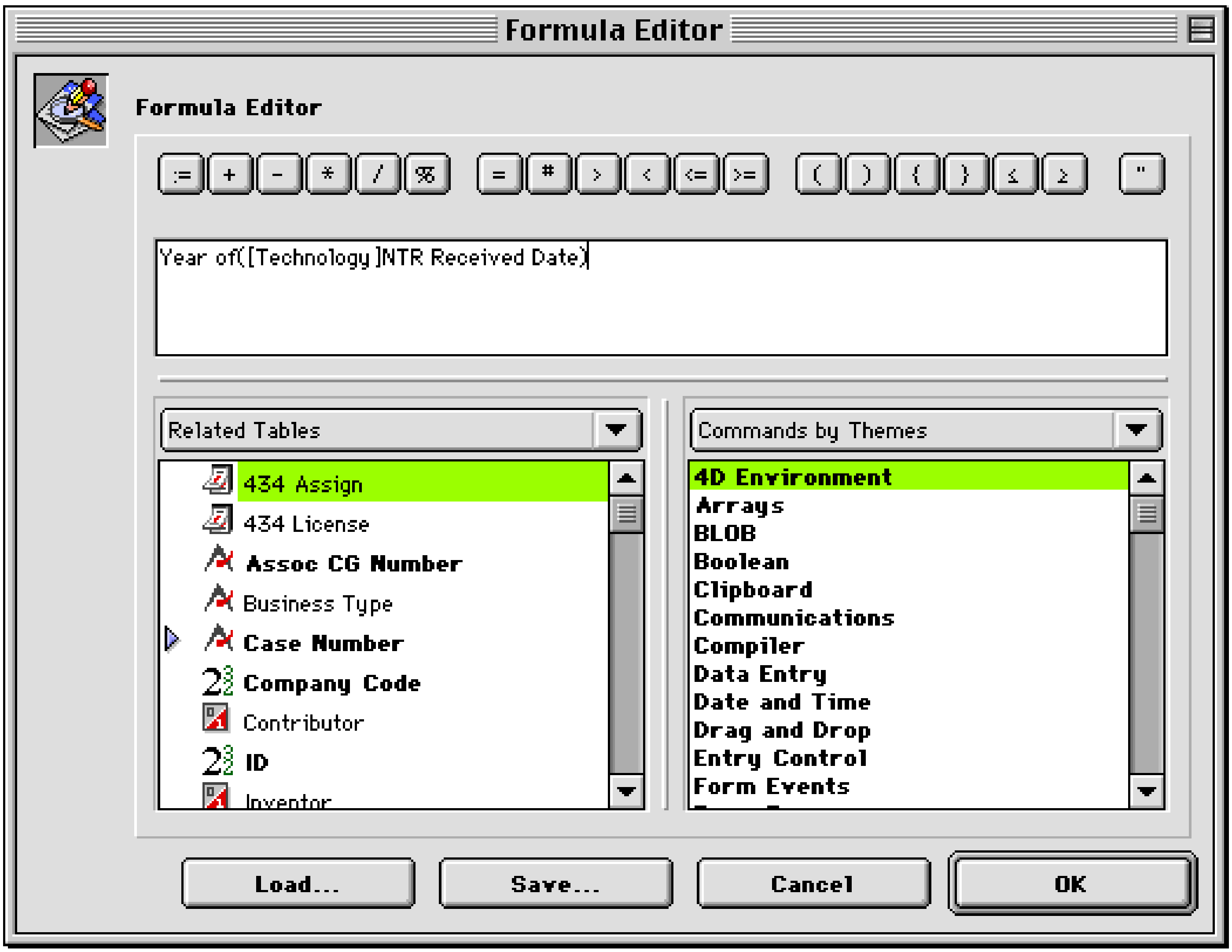
- Deselect Automatic Width using either the check box in the Column Properties area or the Quick Report pop-up menu.
- Move the pointer over the right column border in the quick report to change the pointer into a column width cursor .
- Drag the column indicator to the left or right to resize the column.

Adding Formulas

To add a formula:

- Insert an empty column or click an existing column and from the **Edit** menu, select **Edit** => **Edit Column...**or double-click an existing column, or hold down the mouse button on an existing column header to display the Quick Report pop-up menu and select "Edit Column". 4D displays the Formula Editor, in which the formula can be built. Make sure that the formula does not change the current selection. Changing the current selection will cause problems when the quick report is printed since the report is based on the current selection of records.
- Build the formula or click the *Load* button to retrieve an existing formula from disk.
- Click the *OK* button to assign the formula to the column.

Formula Editor

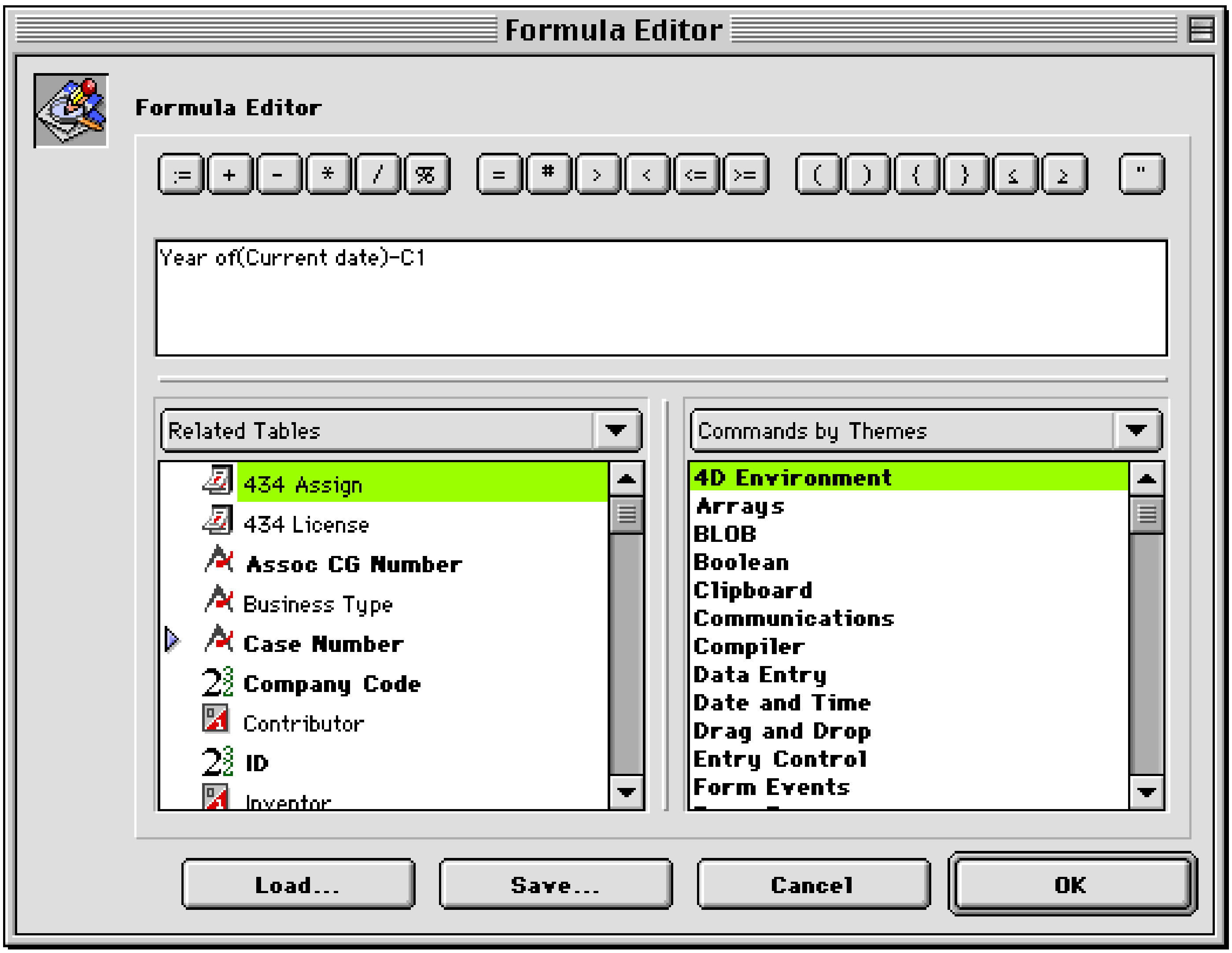


4D adds a new label to the column that identifies it as a formula. Re-label the column by typing a label into the header cell for that column. Formulas are labeled C1 through Cn. The labels are the names of variables that contain the column's value. These variables can be used in other formulas. Click the *Cancel* button to close the Formula Editor and return to the Quick Report Editor without adding the formula.

After the column has been added tot he report, if can be edited by double-clicking on the column or select the column and use the **Edit** => **Column** menu item.

Pictured below, the formula entered into the first column can be used in a second formula column.

Using a Column Value



Sorting Records and Creating Breaks

Other than the traditional desire to view records in a particular order, sorts can be used to create groups of records and Break areas in the report for the purpose of reporting summary calculations for groups.

Specifying a Sort Order

Sort on a formula by selecting the column that contains the formula and then clicking the **Sorted** check box or choosing **Sorted** from the **Quick Report** pop-up menu for that column.

To specify the sort order using the Sorted check box:
- Select the column that contains the field or formula to be specified as the first sort level.
- Click the **Sorted** check box.

To specify the sort order by dragging:
- Drag a field from the Fields list to the Sort order list. If the field is not already in the quick report, 4D adds it as the last field in the design.To specify a sort order using the Quick Report pop-up menu.
- Hold down the mouse button on the column header belonging to the column to be sorted. The Quick Report pop-up menu appears.
- Select **Sorted** from the pop-up menu. 4D displays the name of the field in the Sort list. To the right of the name is an arrow, indicating an ascending sort order. By default, all sorts are performed in ascending sort order.
- If necessary, click the sort direction arrow to sort the column in descending order.
- If desired, select additional fields or formula columns and add the Sorted property using either the Sorted check box or pop-up menu command.

When multiple sort levels are specified, 4D sorts the records from the fields in the order that they appear in the list.

To change the level of a Sort field:
- Drag the name of a field or formula up or down within the Sort list to the desired sort level.

Deleting a Field or Formula from the Sort List:
- Select the column and deselect the Sorted check box or Hold down the mouse button on the column header to display the Quick Report pop-up menu and deselect the **Sorted** menu command. 4D removes the field or formula in the Sort field list. It does not delete the column itself from the report. When printing the report, 4D will no longer use that field or formula to sort the records.

Setting Break Levels In a Quick Report

Break levels are used to separate records into groups according to values in one or more sort fields. A Break area is printed at each break level. Summary calculations can be printed in the Break area. The summary calculations - *sum*, *average*, *minimum*, *maximum*, and *count* are calculated for each group of records. Break levels are determined by the sort levels and Break rows. For example, if the user sorts records by [Tech Innovator]Case Number field and creates a Break row, 4D inserts a break between each group of records that have the same case number. After adding a Break row to the quick report, summary calculations can be requested on each break.

To Insert a Break Row

- From the **Edit** menu, select **Edit** => **Add Break**... or Hold down the mouse button on the Total row label in the Row label bar and choose the "Duplicate Break" menu command.

- There should be at least as many sort levels as break levels. 4D adds a sequential number to each new
  break label in the row label bar, for example, Break1, Break2,Break3, etc.

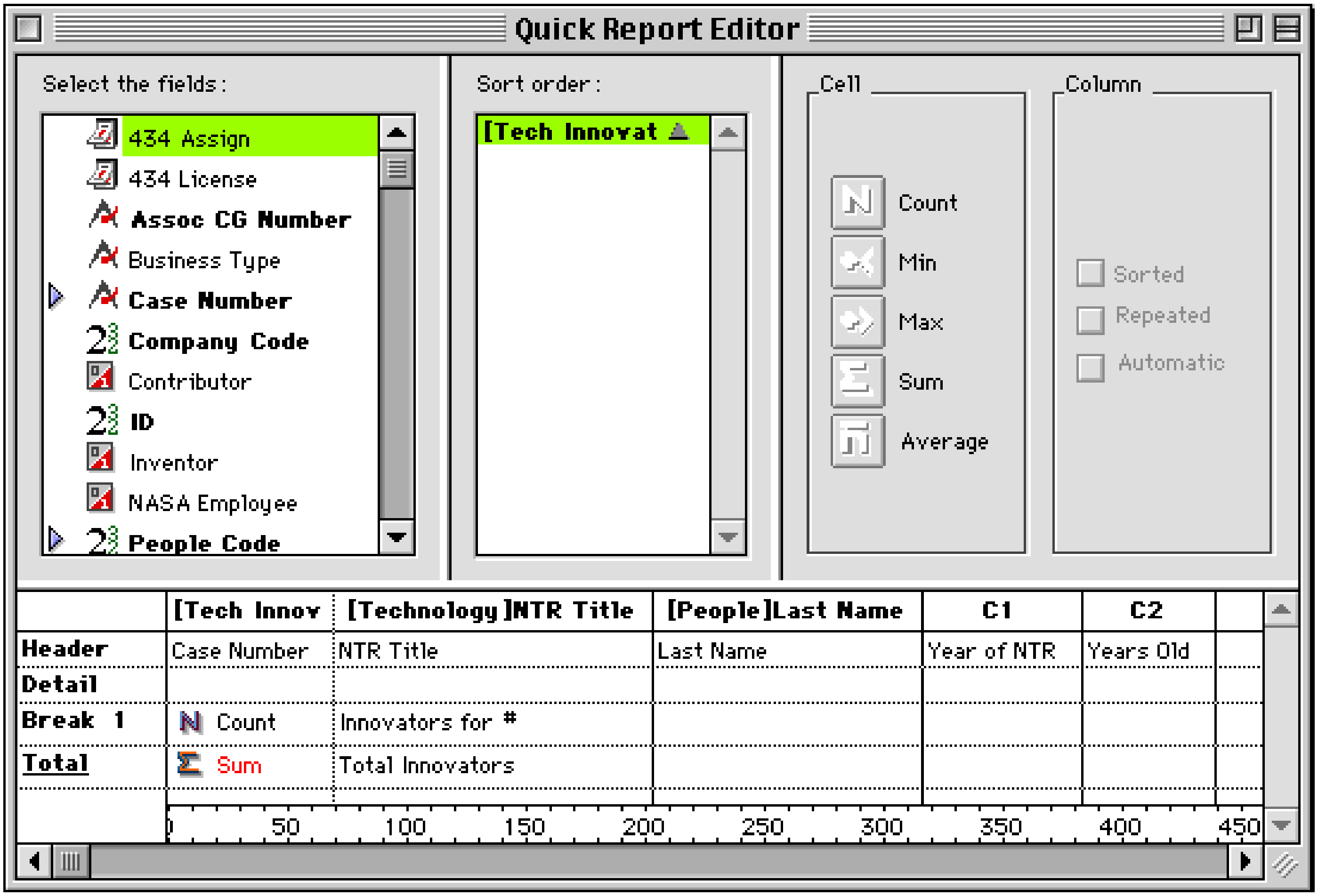
- After creating a Break row, the Quick Report pop-up menu can be displayed by holding down the mouse button on the new Break row label.

Using the Values of Break Fields in Labels

The appearance and readability of reports can be improved by labeling each Break row using the value of the Break field. To request that the value of a Break field be printed in a label placed in the Break area, use the number sign (#) in the label. For example, the text "#" will insert the title (in this case, the value of the [Tech Innovator]Case Number field) in place of the number sign when the report is printed. The number sign does not need to be placed in the same column as the Break field. It will display the value of the Break field in any cell in the Break row.

Depicted below, the [Tech Innovator]Case Number will be displayed for each unique case number to the right of the total for that Case Number in the "Break 1" row.

Values of Break Fields



Adding Summary Calculations

Summary calculations can be added on the contents of fields and formulas to each Break row and to the Totals row. The check boxes in the Cell area of the Quick Report editor identify the summary calculation options available for quick reports. The following types of summary calculations are available.

- Sum totals the values in the report or break.
- Minimum displays the lowest value in the report or break.
- Maximum displays the highest value in the report or break.
- Average calculates the average of the values in the report or break.
- Count calculates the number of records in the report or break.

These options also appear in the Quick Report pop-up menu for cells in the Break and Total rows.

When a summary calculation is placed in the Totals row, the calculation is done for all records in the report. If it is placed in a Break row, the calculation is done for the records in the break.

To add a summary calculation, select the relevant cell and click as many calculation check boxes as needed. If more than one summary calculation is added to a cell, 4D stacks the calculation icons on top of each other.

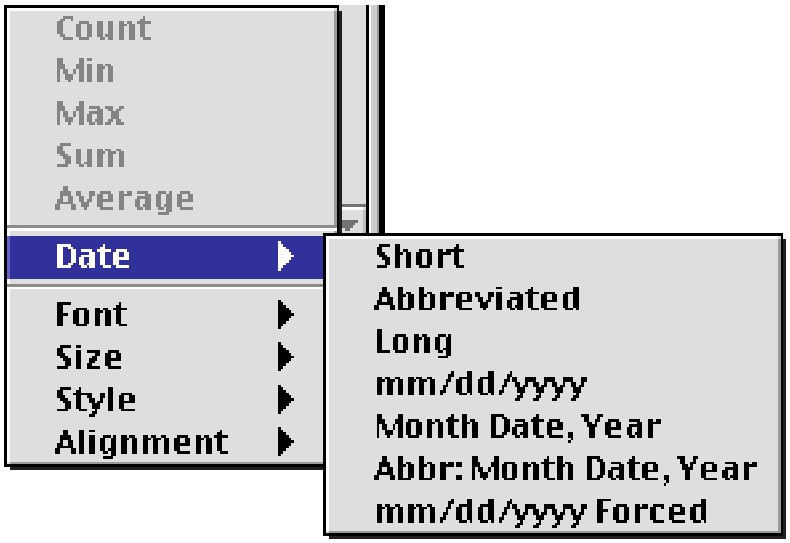
Printing Repeated Values for Break Columns

In a report with breaks, the columns which are used to group records so that summary calculations can be done are called Break columns. In some cases, the user can repeat the values for the Break columns so that they appear for every record in the Break area. This is done by selecting the Repeated Values column property. The user can do so either by clicking the **Repeated Values** check box in the Column Properties area or by selecting the "Repeated Values" menu command in the Quick Reports pop-up menu for that column.

Setting Display Formats

Display formats can be specified for columns that contain numeric or alphanumeric (Alpha) data. If the report includes Alpha fields such as a telephone number or Social Security number, an Alpha format can be used.

Date Formats



NOTE: The Quick Report editor contains a bug which appears to inhibit the ability to convert a date or time field into anything other than the default formats of MM/DD/YY and hh:mm:ss. Control-clicking (or right-clicking in Windows) on the cell of a field in a Quick Report allows the user to select various options, including the format to be used when printing. Choosing one of these options does not provide the expected results for date and time fields. In order to get the required results, enter the numeric value into the cell from the list below:

Date Formats

1 Short 8/16/98
2 Abbreviated Sun, Aug 16, 1998
3 Long Sunday, August 16, 1998
4 mm/dd/yyyy 08/16/98 or 08/16/1898
5 Month Date, Year August 16, 1998
6 Abbr: Month Date, Year Aug, 16, 1998
7 mm/dd/yyyy Forced 08/16/1998 or 08/16/2001

Time Formats

1 HH:MN:SS 01:02:03
2 HH:MN 01:02
3 hour min sec 1 hour 2 minutes 3 seconds
4 hour min 1 hour 2 minutes
5 HH:MN AM/PM 1:02 AM

Numeric Formats

The following format places a dollar sign to the left of the number and allows up to 7 digits:
$#,###,###
This format can display dollar amounts up to $9,999,999.

Alpha Formats

An Alpha format can be used for fields that contain string information. For example, the following format would be used to format Social Security numbers: ###-##-####

Boolean or Logical Formats

There is not a display format for Boolean or Logical type data. 4D will print this data as "True" or "False". By inserting the following code into the formula editor, the Quick Report will print "Yes" for true and "No" for false. Any two options for any Boolean or Logical field in NASA TechTracS can be substituted here.

("YES"*Num([License]Comments received))+("NO"*Num(Not([License]Comments received)))

Another variation might be:

("Send to HQ"*Num([License]Send to HQ))+("Do Not Send"*Num(Not([License]Send to HQ)))

Entering the Display Format for a Field

Enter a display format or custom format by choosing it from the Quick Report pop-up menu for the cell or by typing it into a cell.

To enter a display format for a numeric or Alpha field:

- Click twice in the Detail cell for a numeric or Alpha column.
- Type a display format or the name of a style to be used as the display format.

The names of styles are preceded by a vertical bar (|).

To choose a display format from the Quick Report pop-up menu:

- Position the pointer over the Detail cell for a column and hold down the mouse button and choose a display format from the hierarchical menu.

The hierarchical menu will show display formats that are appropriate for the data type of the column. For example, if the field was a numeric format, the menu command would be "Numeric" instead of "Alpha" and the submenu would list only numeric formats. For example, the format named "|Dollars" in NASA TechTracS will display numeric data as currency.

If requesting summary calculations for that column, the format specified in the Detail cell will automatically be applied to the summary calculations. Regardless of the display format, the count is always displayed as an integer without formatting symbols such as the dollar sign. Different formats can be applied to different columns in the report.

Hiding and Showing Rows and Columns

Hiding rows is useful when the report is to include only summary calculations. This feature can hide a Detail row, a Break row, or the Totals row. The user can hide a column if they need to use the column as a sort column, but do not want the report to display the column. Rows can be hidden using either a Quick Report menu command or the Quick Reports pop-up menu.

To Hide a Row Using the Menu Command

- Select the row to be hidden.
- From the **Edit** menu, select **Edit** => **Hide**...

To Hide a Row Using the Pop-up Menu

- Hold down the mouse button over the row label in the Row label bar.
- Select Hide from the pop-up menu. 4D displays the row in gray to indicate that the row will not
  appear when the report is printed or previewed.

To Hide a Column Using the Menu Command

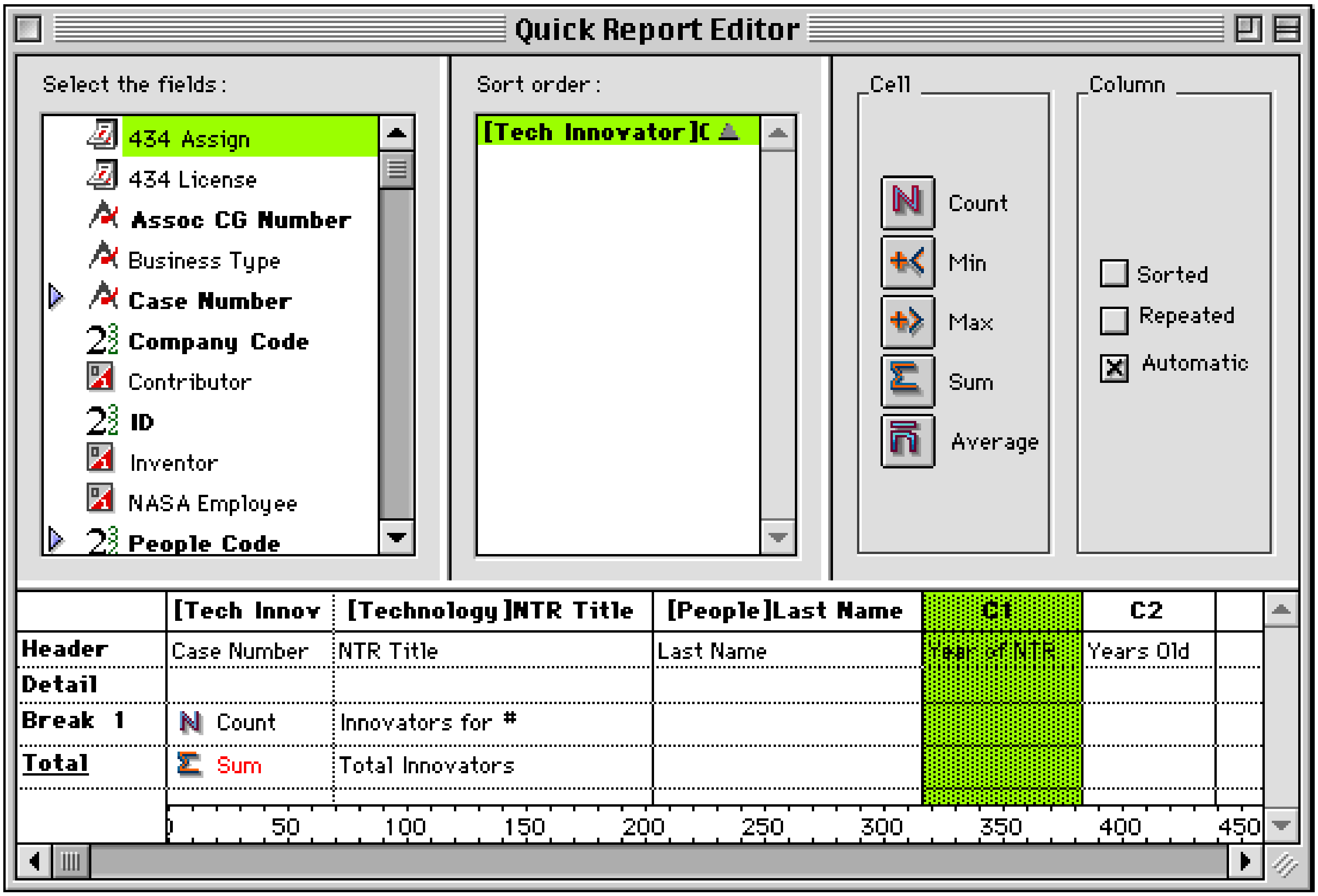
- Select the column to be hidden.
- From the **Edit** menu, select **Edit** => **Hide**...

To Hide a Column Using the Quick Reports Pop-up Menu

- Hold down the mouse button over the column header.
- Select **Hide** from the pop-up menu.

Pictured below, the column is displayed in gray to indicate that it will not appear in the printed report.

Hidden Column Example



When a row or column is hidden, the **Hide** menu command in the **Edit** and **Quick Report** pop-up menus becomes **Show**. Selecting **Show** will allow the row or column to reappear.

Page Headers and Footers

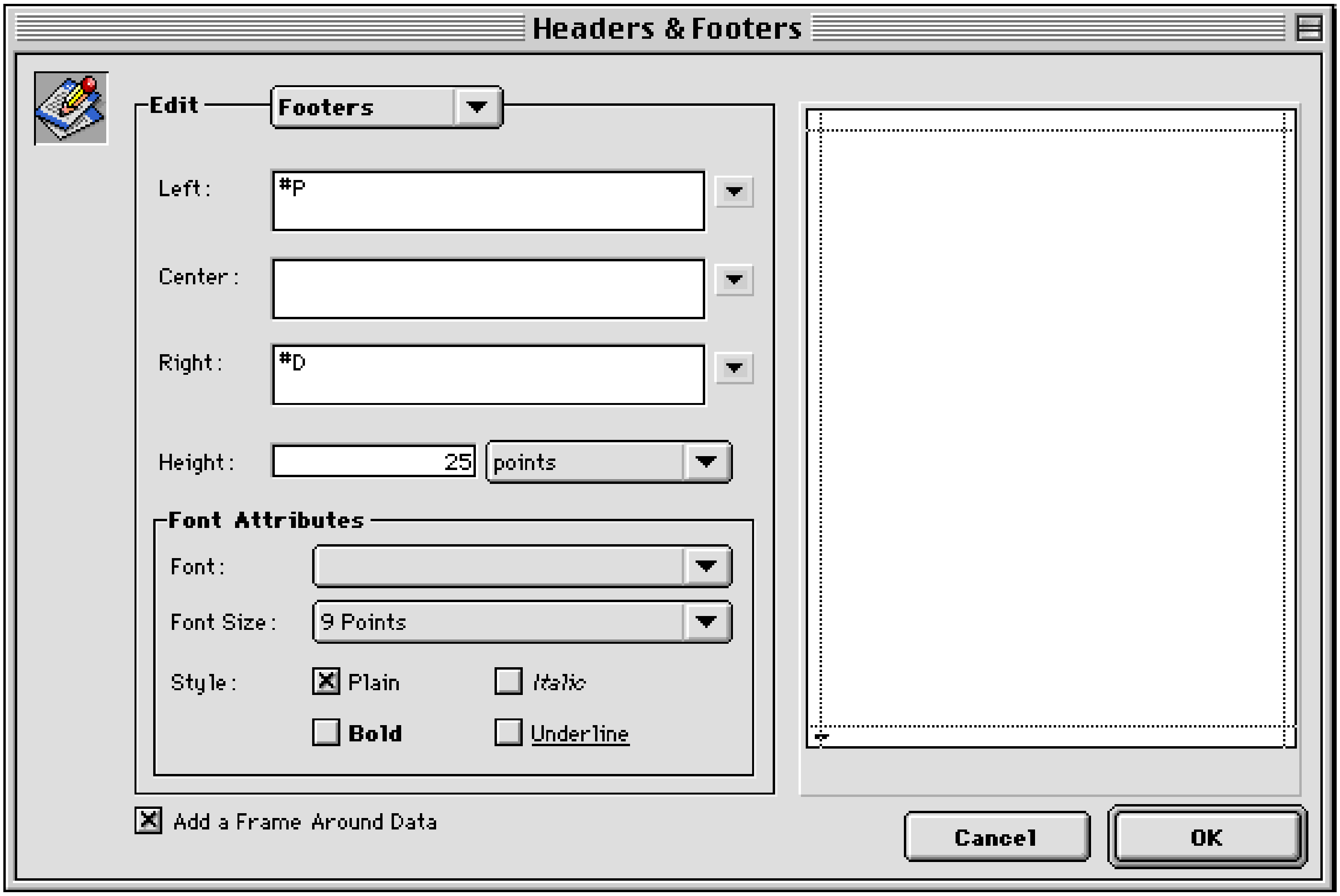
- From the **File** menu, select **File** => **Headers and Footers**... The Header and Footers dialog box specifies both headers and footers from the same screen. The Edit drop-down list is used to specify either the header or footer.

- Select "Header" or "Footer" from the "***Edit***" drop down list.

- Enter the header or footer height in the height area. Upon initial entry of the dialog box, the header and footer heights are set to 25 points (approx. 1/3 inch) each. The values for the height can be changed and the measurement scale can be set to inches or centimeters. As the header and footer height is entered, the dotted lines on the page preview area change to indicate the size of the header and footer as they will appear on the printed report.

- Select an entry area and type the header or footer text. To the right of each entry area is a pop-up menu that allows the user to insert variables into the entry area. The current page number (#P), time of printing (#H), or date of printing (#D) can be inserted from the pop-up or by simply typing in the code.

Headers and Footers



Choose a font and font size from the drop-down lists and click one or more Style check boxes. The specifications are applied to all three entry areas. It is not possible to apply different font attributes to different areas of the header or footer, although it is possible to have different attributes for the header and the footer.

<u>Printing a Quick Report</u>

After completing the report design, the quick report can be printed to a standard printer selected in the Print Manager (the Chooser on Macintosh), to disk, or to a graph. To select an output device choose **File** => **Print Destination** from the **File** menu. If printing to a printer, the report can be previewed before printing it.

Tutorials

Tutorial #1 - Simple Quick Report (10 minutes)
Simple reports can quickly be created using the Quick Report Editor. Using a previously saved query in the [Technology] table, create a quick report that includes the [Technology]Case Number, [Technology]NTR Received Date, and [Technology]NTR Title.

1. Select [Technology] table from the Data Control Panel and click *OK*.
2. Select **Query Editor** from the pop-up query icon (magnifying glass symbol) on the bottom of the screen.
3. Find Technologies where [Technology]Report As field is equal to GE.
4. From the **Utilities** menu, select **Utilities** => **Quick Report**....
5. Drag/drop [Technology]Case Number field to report template.
6. Drag/drop [Technology]NTR Received Date field to the right of [Technology]Case Number field.
7. Double-click [Technology]NTR Title field.
8. From the **File** menu, select **File** => **Save as**... and type "**TechReport1**" for the filename.
9. From the **File** menu, select **File** => **Print Preview**...
10. Click the *Zoom* button icon (magnifying glass symbol) to zoom into report.
11. Click the *Zoom* button to return to normal viewing mode.
12. Click the *Next/Previous Page* buttons (arrows) to preview next/previous pages.
13. Click the *Print Page* button (printer symbol) to print current page.
14. Click the *Stop* button (stop sign symbol) to return to quick report.

Tutorial #2 - Formatting the Quick Report (5 minutes)

1. Click the word **Header** to highlight the header area.

2. From the **Style** menu, select **Style** => **Bold**...

3. Double-click in the cell where the **Header** row and **NTR Received Date** intersect. Remove the "NTR <space>" so that only "Received Date" remains.

4. Double-click in the cell where the **Header** row and **NTR Title** intersect. Remove the "NTR<space>" so that only "Title" remains.

5. In the detail area of the [Technology]NTR Received Date column type "7". This will force the date to appear as mm/dd/yyyy.

6. From the **File** menu, select **File** => **Save**...

7. From the **File** menu, select **File** => **Print Preview**...

Tutorial #3 - Automatic Width (5 minutes)

Automatic width is automatically checked for every data field that is added to a quick report. When there are few records and the report is simple, automatic column width works well. However, automatic calculation can take several minutes when there are a large number of records and the results of the automatic columns might not be what is needed. Therefore, it is recommend that automatic width be unchecked and each column manually adjusted.

1. Click the [Technology]Case Number column and uncheck the Automatic Width check box.

2. Resize the column width for the [Technology]Case Number by positioning the cursor on the right-hand side of the column. Click and drag the right-hand side of the column to position 70 (approx. 1 inch) on the ruler.

3. Resize [Technology]NTR Received Date column from position 70 points (approx. 1 inch) to position 140 points (approx. 2 inches) on the ruler.

4. Resize [Technology]NTR Title column from position 140 points to the right edge of the paper which is indicated by a vertical line. (Approximately 520 points)

5. From the **File** menu, select **File** => **Page Setup**... Choose landscape. Click the *OK* button.

6. Notice that the right edge of the paper has moved to the right at approximately 700 points (approx 7-1/4 inches).

7. From the **File** menu, select **File** => **Print Preview**...

8. Click the *Stop* button.

9. From the **File** menu, select **File** => **Save**...

Tutorial #4 - Headers/Footers (10 minutes)

The following special codes can be used in the header and footer:

#D	Current Date
#H	Current Time
#P	Page Number

The codes can be typed in or chosen from the triangle pop-up located next to each header/footer area (i.e. left, center, right).

1. From the **File** menu, select **File** => **Headers & Footers**...

2. Type "Technology Report" in the left header area.

3. Type "As of #D, #H" in the right header area.

4. Select **inches** from the **Height** pop-up.

5. Type ".4" as the header height.

6. Select **Times** from the **Font** pop-up.

7. Select **14 Point** from the **Font** pop-up.

8. Select **Footer** from the **Edit** pop-up.

9. Type "Page #P" in the right footer.

10. Select **inches** from the **Height** pop-up.

11. Type ".25" as the footer height.

12. Select **Times** from the **Font** pop-up.

13. Select **12 Point** from the **Font** pop-up.

14. Click the *OK* button.

15. From the File menu, select **File** => **Print Preview**....

16. Click the *Stop* button.

17. From the **File** menu, select **File** => **Headers & Footers**...

18. Uncheck **Add a Frame Around Data**. Click the *OK* button.

    NOTE: Ruler has changed to inches instead of points.

19. From the **File** menu, select **File** => **Print Preview**...

20. Click the *Stop* button.

21. From the **File** menu, select **File** => **Headers & Footers**...

22. Check **Add a Frame Around Data**. Click the *OK* button.

23. From the **File** menu, select **File** => **Save**...

Tutorial #5 - Sorting (5 minutes)

1. Click the [Technology]NTR Received Date column.

2. Check the **Sorted** check box.

3. From the **File** menu, select **File** => **Print Preview**...

   NOTE: If dates appear to be missing from the report it is because the sort function does not display repeated values by default.

4. Click the *Stop* button.

5. Click the [Technology]NTR Received Date column.

6. Check the **Repeated Values** check box.

7. From the **File** menu, select **File** => **Print Preview**...

8. Click the *Stop* button.

9. Click once on triangle to the right of [Technology]NTR Received Date in the Sort order: list to reverse the sort.

10. From the **File** menu, select **File** => **Print Preview**...

11. Click the *Stop* button.

12. From the **File** menu, select **File** => **Save As**... and type "TechReport2" as the filename.

Tutorial #6 - Calculations (10 minutes)

1. Drag/drop the [Technology]TSP Total Inquiries field to the right of the [Technology]NTR Title field.

2. Uncheck the **Automatic Width**. Resize the column to about 1 inch or 70 points wide.

3. Double-click in the cell where the **Header** row and "**TSP Total Inquiries**" column intersect.

4. Select the text "TSP Total Inquiries" and from the **Style** menu, select **Style** => **Bold**...

5. Click where the **Total** row and [Technology]TSP Total Inquiries column intersect.

6. Click on the following calculation buttons in the Cell area of the screen.

   Count **Min**
   Max **Sum**
   Average

7. Click twice in the cell to the left of the calculations and type the following:

   Sum **Average**
   Min **Max**
   Count

8. Select the text just entered. From the **Style** menu, select **Style** => **Right**...

9. Highlight the **Total** row by clicking on the word **Total**.

10. From the **Style** menu, select **Style** => **Bold**...

11. From the **File** menu, select **File** => **Print Preview**....

12. Click on the *Next Page* button until you reach the end of the report.

13. Click the *Stop* button.

14. From the **File** menu, select **File** => **Save**...

Tutorial #7 - Related Fields (5 minutes)

1. Click on the [Technology]NTR Title column.
2. From the **Edit** menu, select **Edit** => **Insert Column**...
3. Locate the [Technology]Contract Number field.
4. Click on the relate icon (PC-Square; Mac-Triangle) next to the [Technology]Contract Number field to reveal the fields in the [Contract_Grant] table.
5. Locate the [Contract_Grant]Company Code field.
6. Click on the relate icon next to the [Company]Company Code field to reveal the fields in the [Company] table..
7. Double-click on the [Company]Name field.
8. Click the *OK* button.
9. Uncheck **Automatic Width**.
10. Resize the [Company]Name column to 1-1/2 inches or 110 points wide.
11. Click twice in the header cell for [Company]Name column and type "Company Name" as the header for the [Company]Name column.
12. Select the text "Company Name" and from the **Style** menu, select **Style** => **Bold**....
13. From the **File** menu, select **File** => **Print Preview**...
14. Click the *Stop* button.
15. From the **File** menu, select **File** => **Save**...

Tutorial #8 - Built-In 4D Expressions (5 minutes)
There are over a hundred built-in expressions that are available for use in the quick report editor. (See the 4D Language Reference for a complete listing)

1. Click on the [Technology]NTR Received Date column.

2. From the **Edit** menu, select **Edit** => **Delete Column**...

3. Click on the [Technology]Case Number column.

4. From the **Edit** menu, select **Edit** => **Insert Column**....

   NOTE : The column is labeled C1.

5. Locate **Date** and **Time** in the **Commands by Theme** section and click and hold to display pop-up. Select **Year of**.

6. Type "(" without the quotes.

7. Double-click on [Technology]NTR Received Date to insert the field.

8. Type ")" without the quotes.

9. Click the *OK* button.

10. Uncheck **Automatic Width**. Check **Sorted**. Check **Repeated Values**.

11. Type "Year" in the header for C1.

12. From the **Style** menu, select **Style** => **Left**...

13. From the **File** menu, select **File** => **Print Preview**...

14. Click the *Stop* button.

15. From the **File** menu, select **File** => **Save as**... and type "TechReport3" as the filename.

Tutorial #9 - Adding a Break (5 minutes)

1. From the **Edit** menu, select **Edit** => **Add Break**...

2. Click where the **Break 1** and [Technology]TSP Total Inquiries column intersect.

3. Click on the following calculation buttons in the Cell area of the screen.
   Count
   Min
   Max
   Sum

4. In the cell to the left of the calculations, type the following:
   Sum
   Average
   Min
   Max
   Count

5. Select the text just entered. From the **Style** menu, select **Style** => **Right**...

6. Highlight the **Total** row by clicking on the word **Total**.

7. From the **Style** menu, select **Style** => **Bold**....

8. From the **File** menu, select **File** => **Print Preview**...

9. Click the *Next Page* button until you reach the end of the report.

10. Click the *Stop* button.

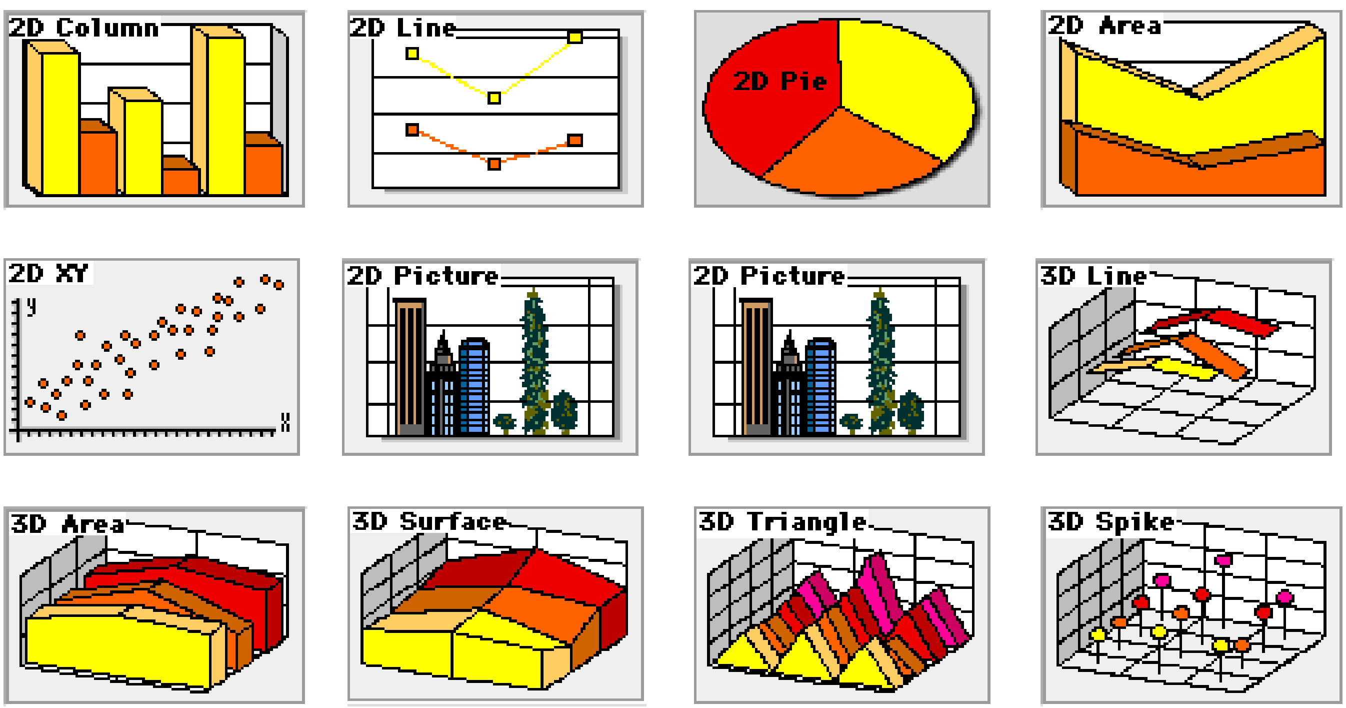
11. From the **File** menu, select **File** => **Save**...

12. Close the Quick Report window.

4D Chart

Overview

4D Chart is a useful tool for creating various types presentation quality charts. Type of charts available include:



Data

Before invoking 4D Chart, the records from the table to be used in the chart need to be in the current selection. Therefore, some kind of query (ie query editor) must be performed on the table to create one or more records in the selection. Records also need to be sorted by using Order By so that the data is ordered in the right way on the chart.

4D Chart Window

After invoking 4D Chart form the function bar on the Data Control Panel or the **Utilities=> Charts** menu item, the 4D Chart Window is displayed.

4D Chart Window

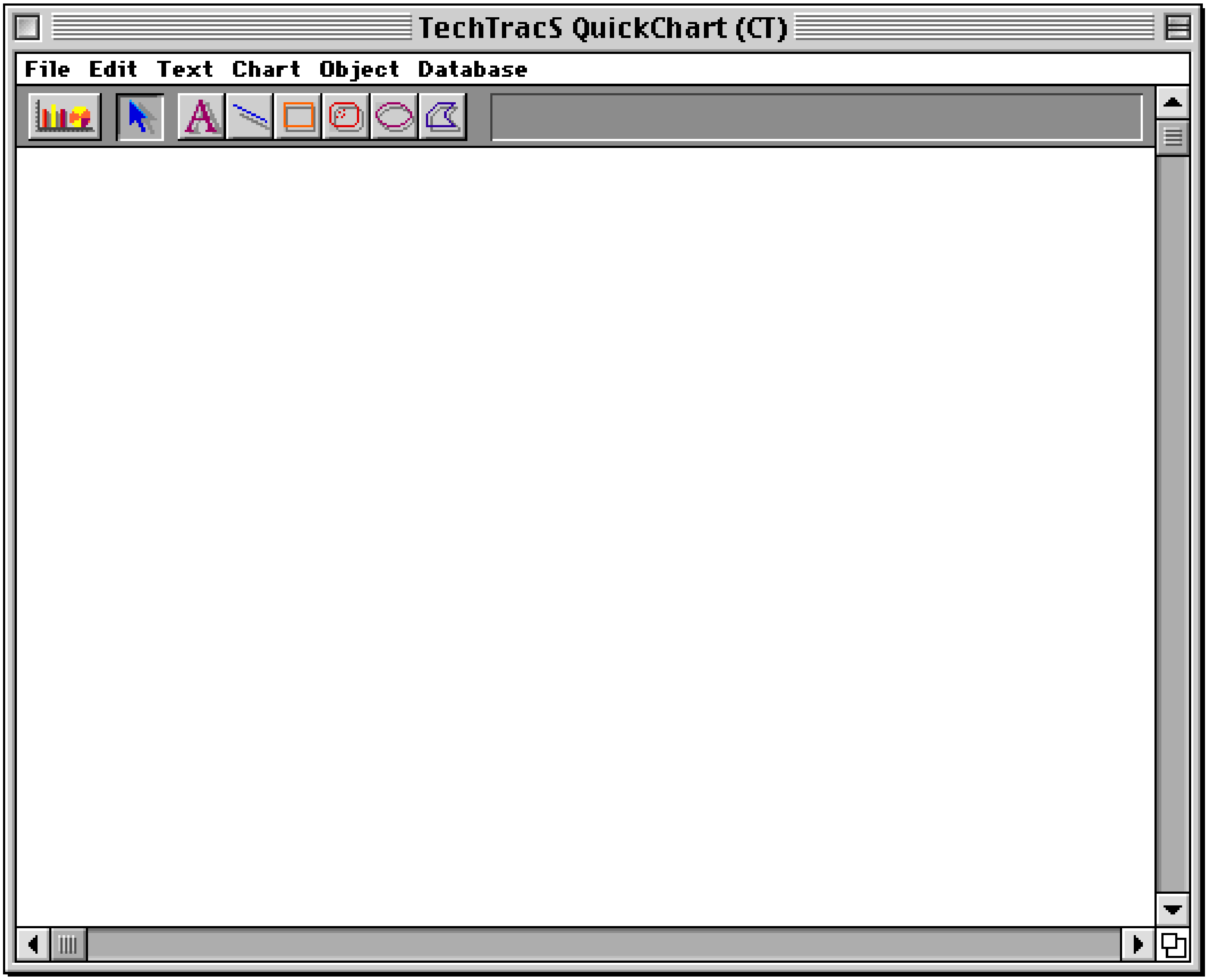


Chart Wizard

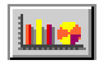
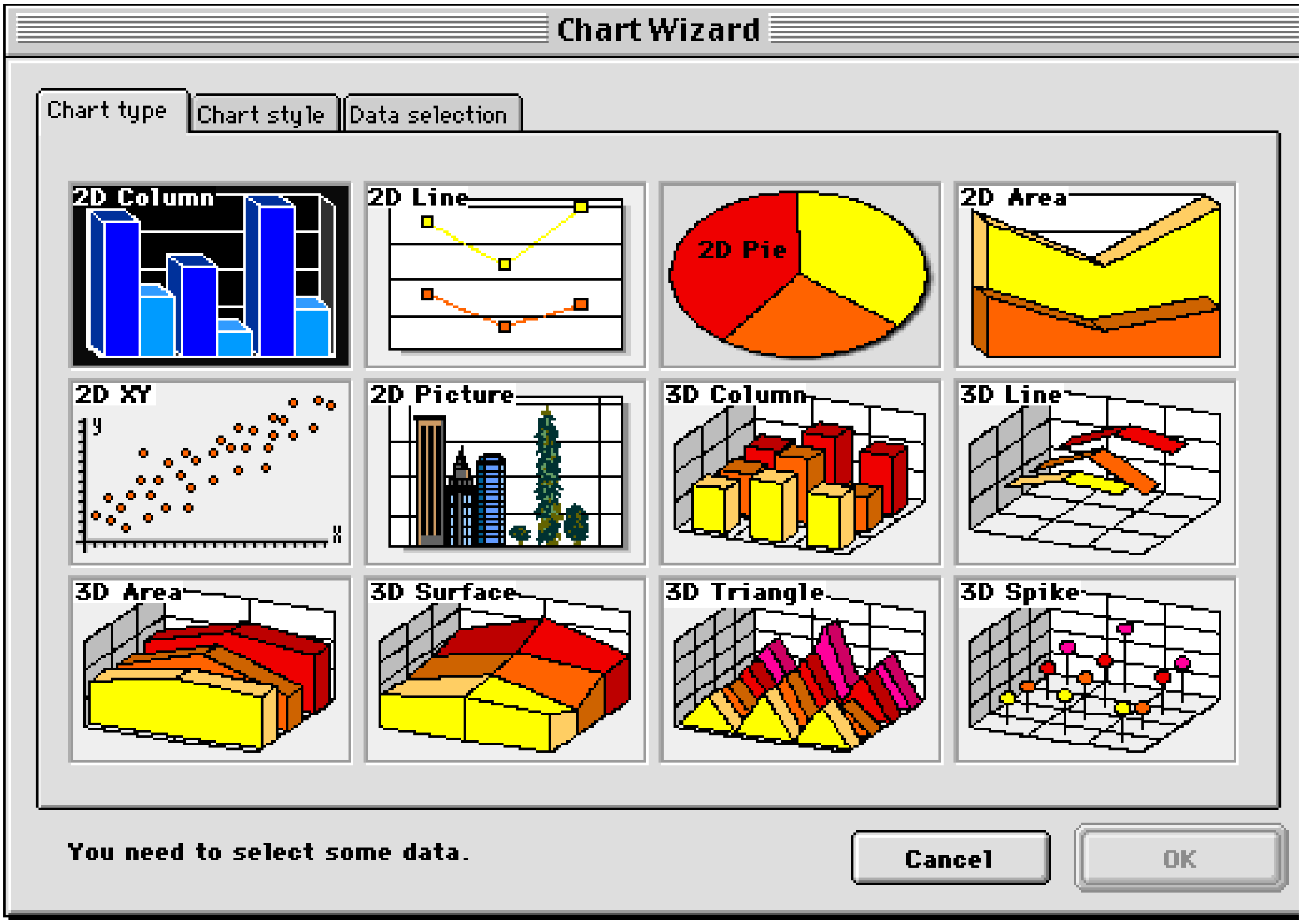
In order to create a new chart, click on the chart wizard icon  or choose **File=>New** menu item. The chart wizard dialog in then displayed.

Chart Wizard



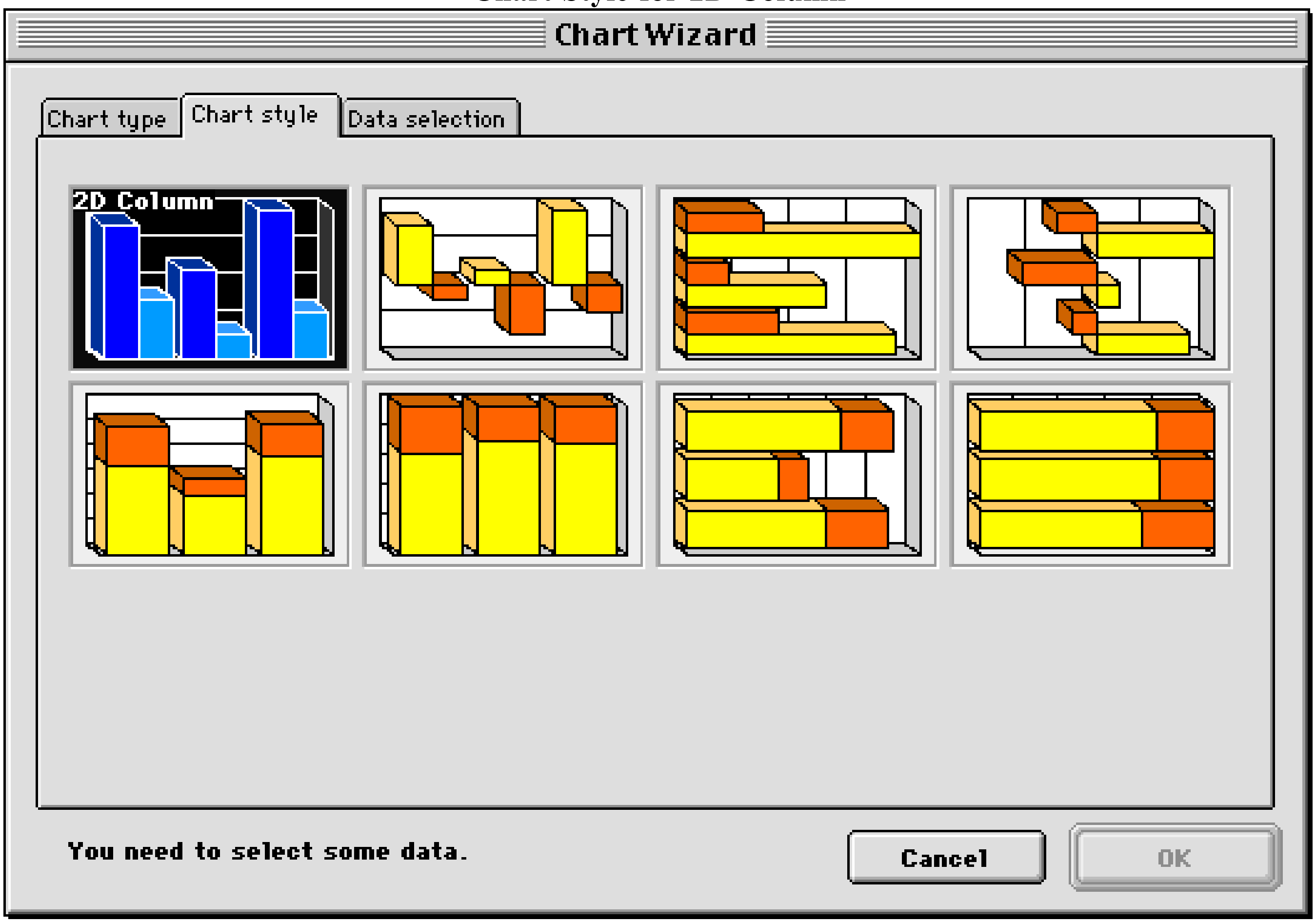
The chart wizard has three sections or tabs:

1) Chart Type,
2) Chart Style, and
3) Data Selection.

Chart Type
The chart type defaults to 2D Column. To select a different chart type, the user simply clicks on desired the chart type.

Chart Style
The chart style contains the various options for charting the chosen chart type.

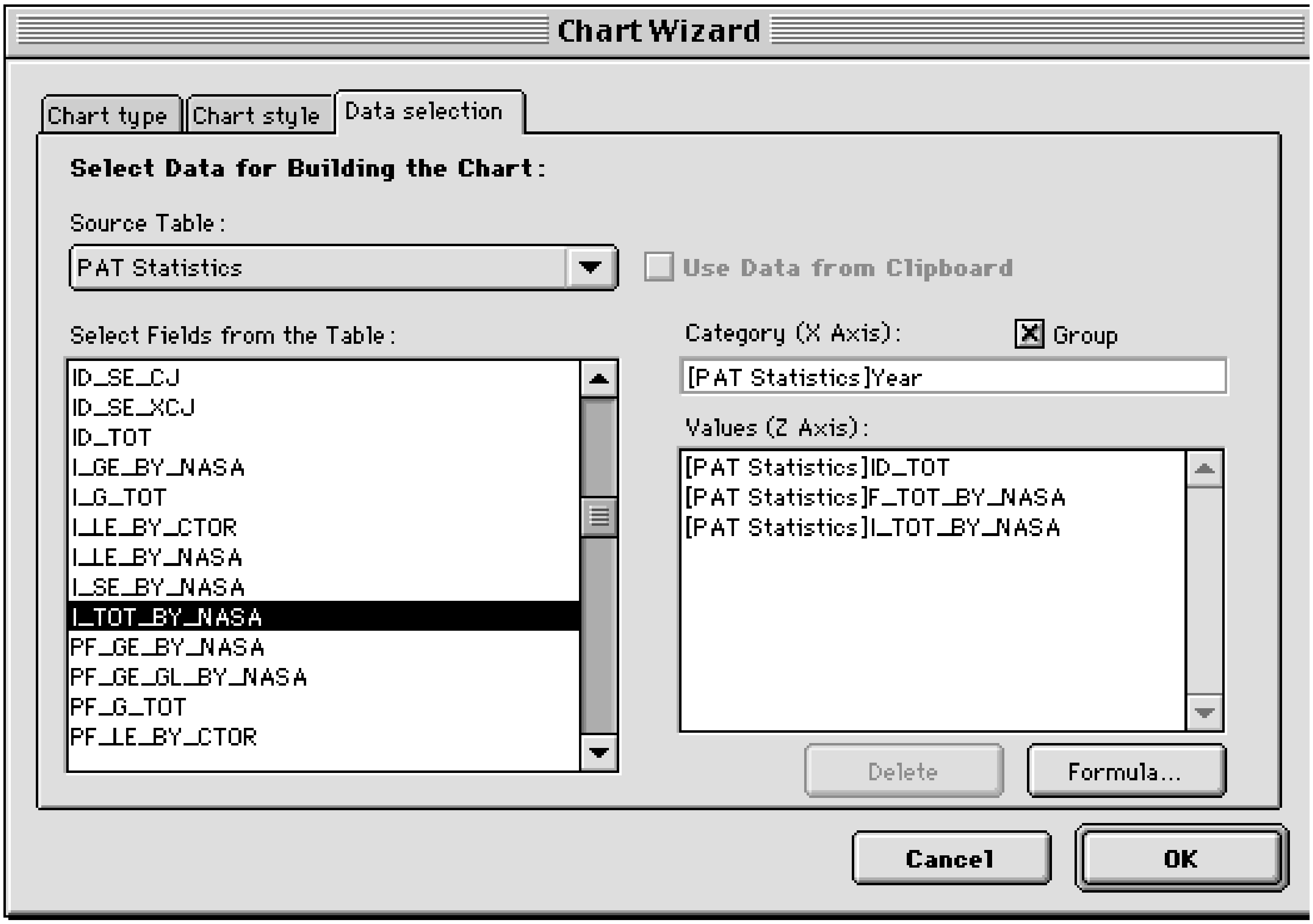
Chart Style for 2D Column



Data Selection

Data selection is where the data fields to be used in the chart (X Axis and Z Axis) are selected. The source table defaults to the first table in alphabetical order in the database (ie. [Action Item]). To change the source table, click on the source table popup and select the appropriate table.

Data Selection



After selecting the source table, the fields from the source table appear in the "Select Fields from the Table:" area. A field can be selected for the X Axis or Z Axis by dragging and dropping the field in the appropriate area or by double clicking the field. If the double clicking method is used, the first double click select the X Axis. Each subsequent double click selects a field for the Z Axis. After adding all the fields, clicking the *OK* button creates the chart.

Chart

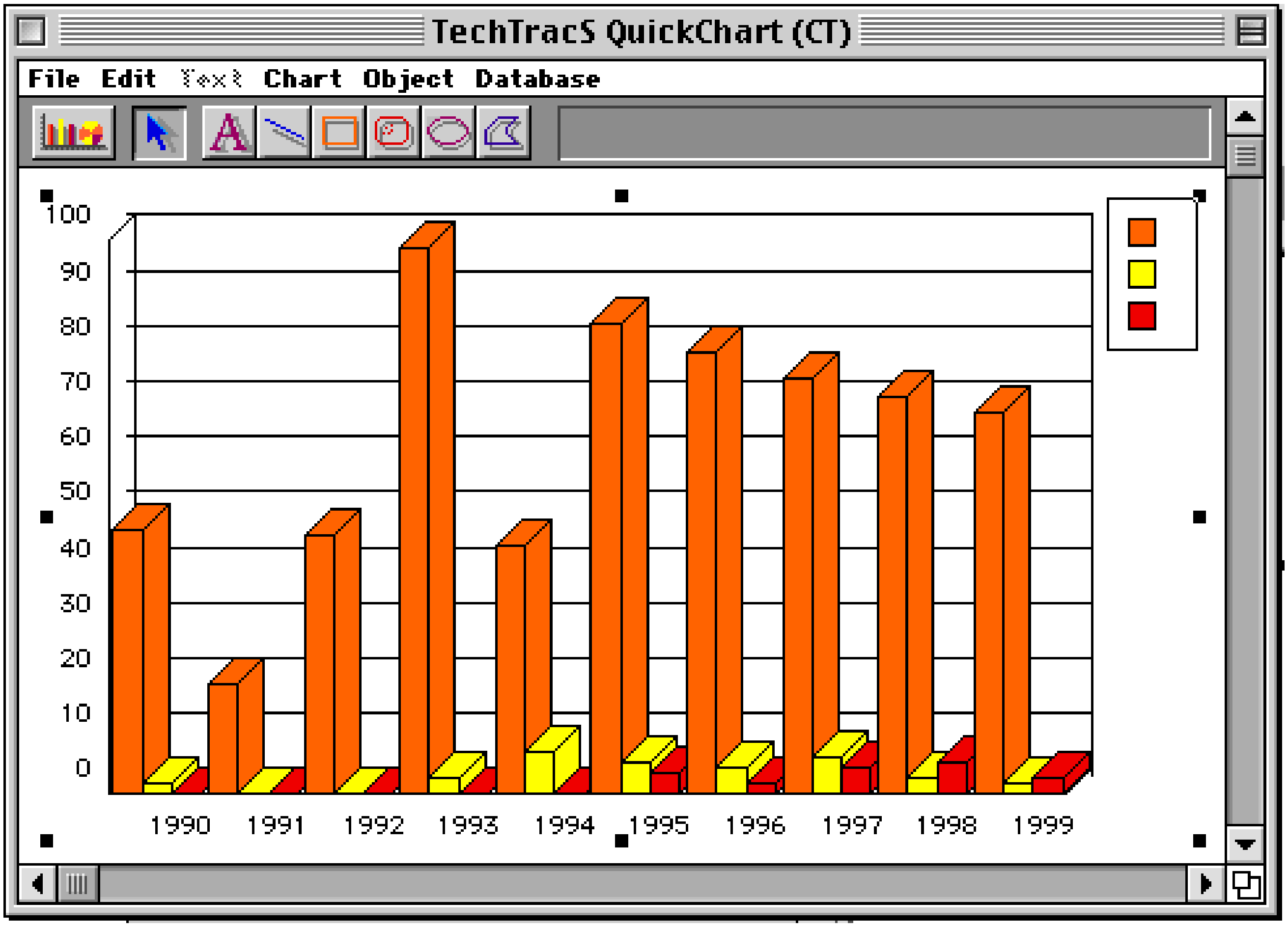


Chart Options

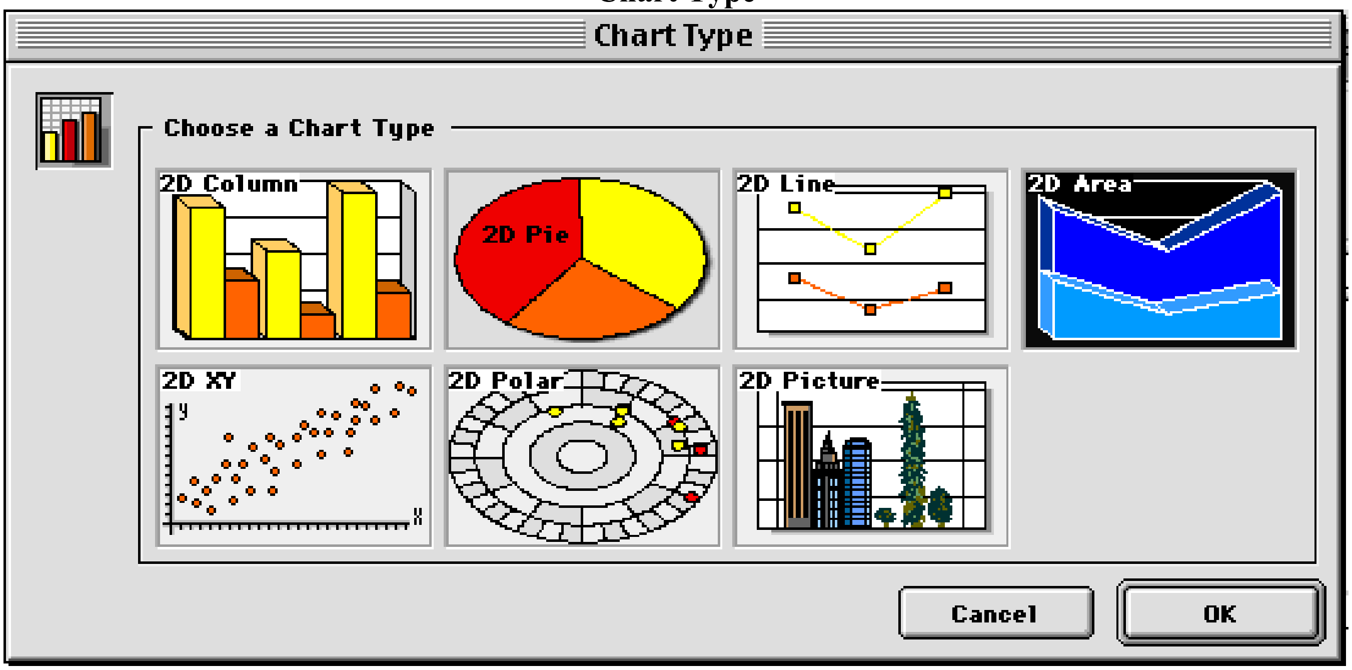
After the chart is created, there are several options available to modify the appearance of the chart including:

- Chart Type
- Axis
- Grid Lines
- Titles
- Legend
- View
- Values
- Tips
- Options
- Update

Chart Type

The chart type can be changed by invoking the **Chart => Chart Type...** menu item. The chart types are displayed and are selectable by a single mouse click. After selected the chart type, the *OK* button must be clicked.

Chart Type

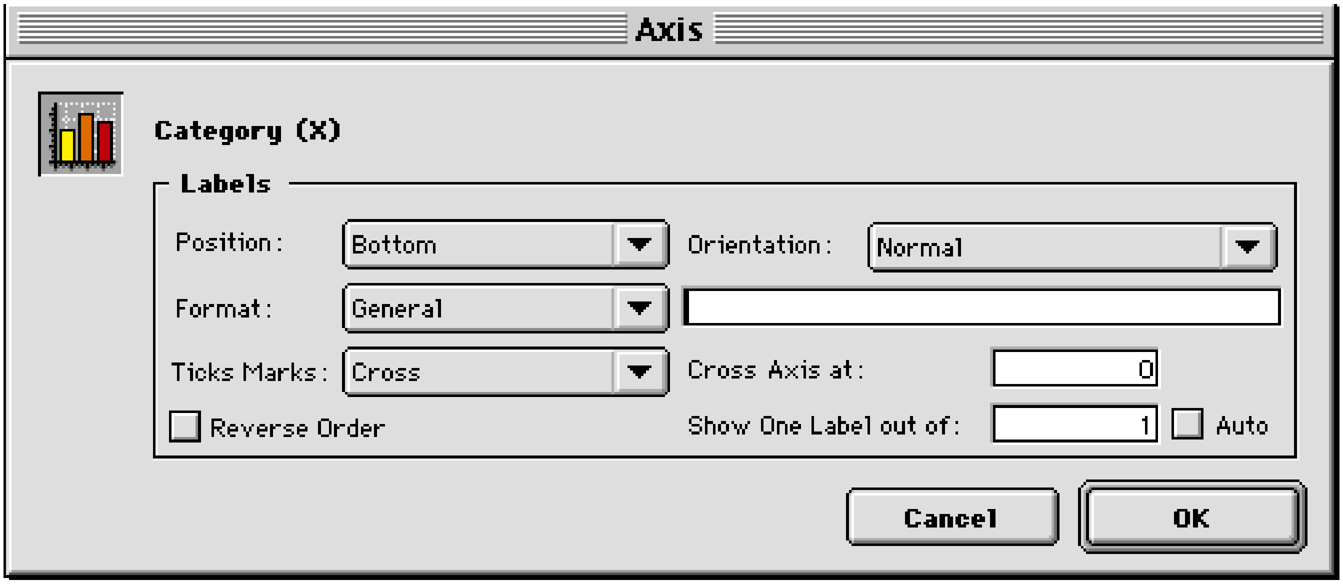


Axis

The X axis and Z axis have several option labels available.

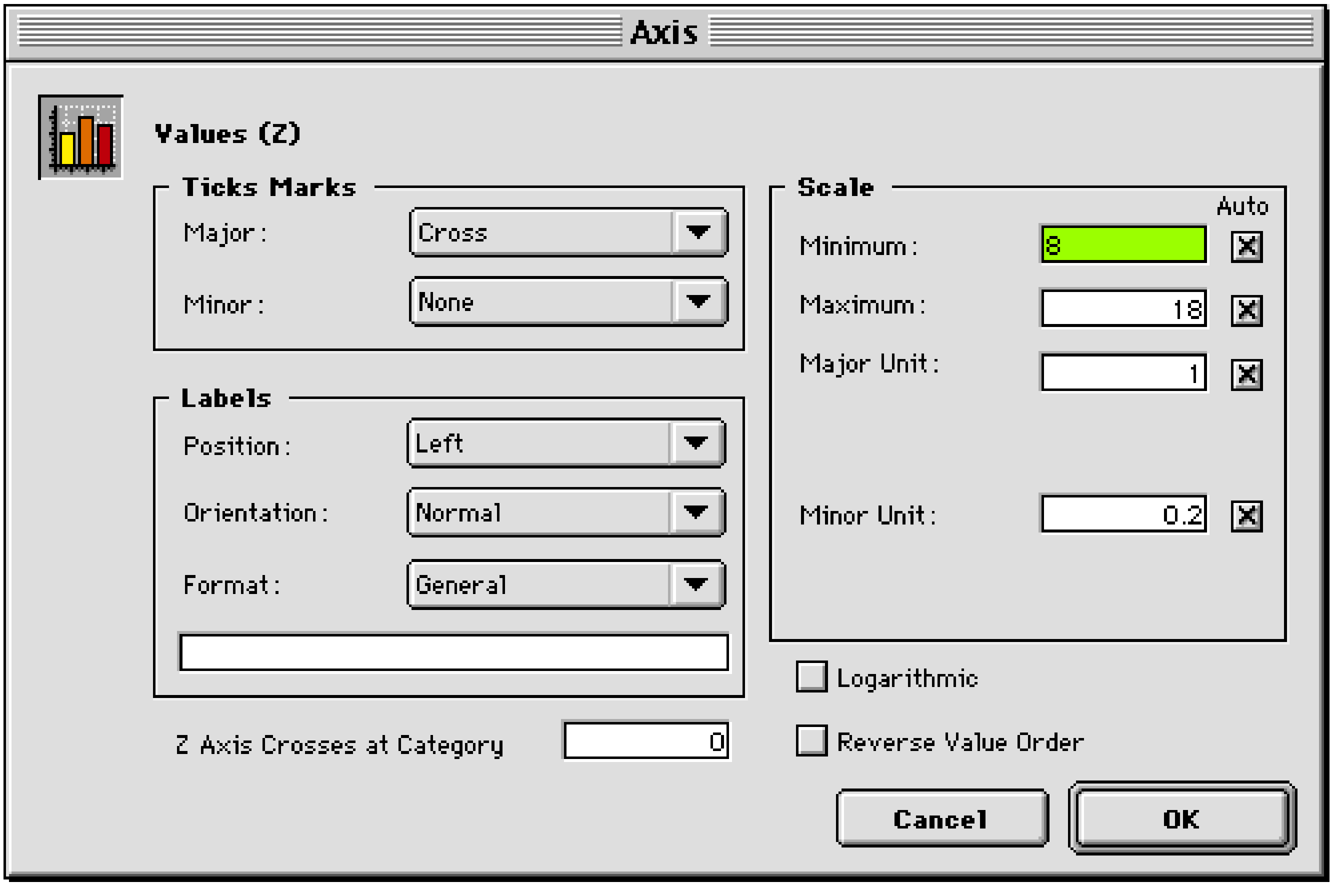
The X Axis label options are available by choosing the **Chart => Axis => Category (X)...** menu item. Label options available include: Position, Format, Tick Marks, Orientation and label text.

X Axis Options



The Z Axis label options are available by choosing the **Chart => Axis => Values (Z)...** menu item. Label options available include: Tick Marks, Scale and Labels.

Z Axis Options

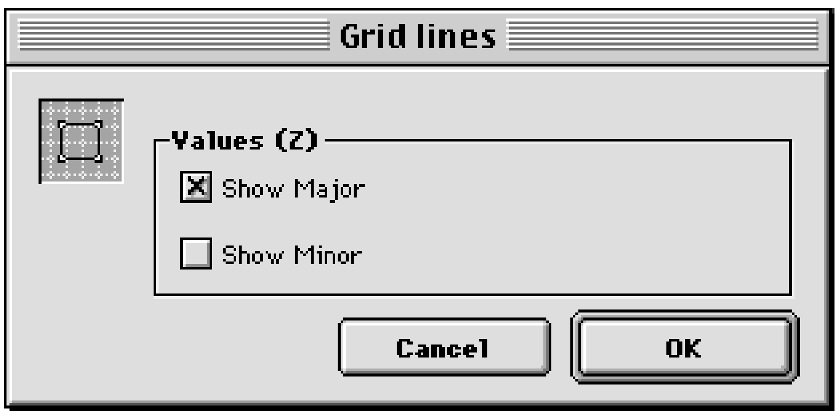


Grid Lines

The grid lines for the X and Z Axis can be turned on/off by accessing the **Chart => Grid Lines** menu time.

Category (X) Grid Lines

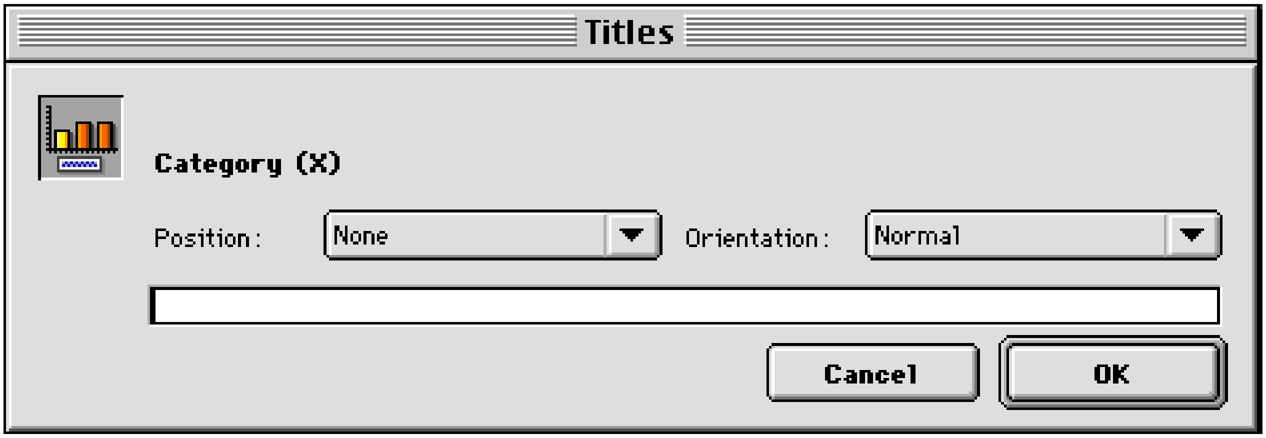
Values (Z) Grid Lines



Titles

The text, position and orientation of the title can be modified through the menu item **Chart => Titles.**

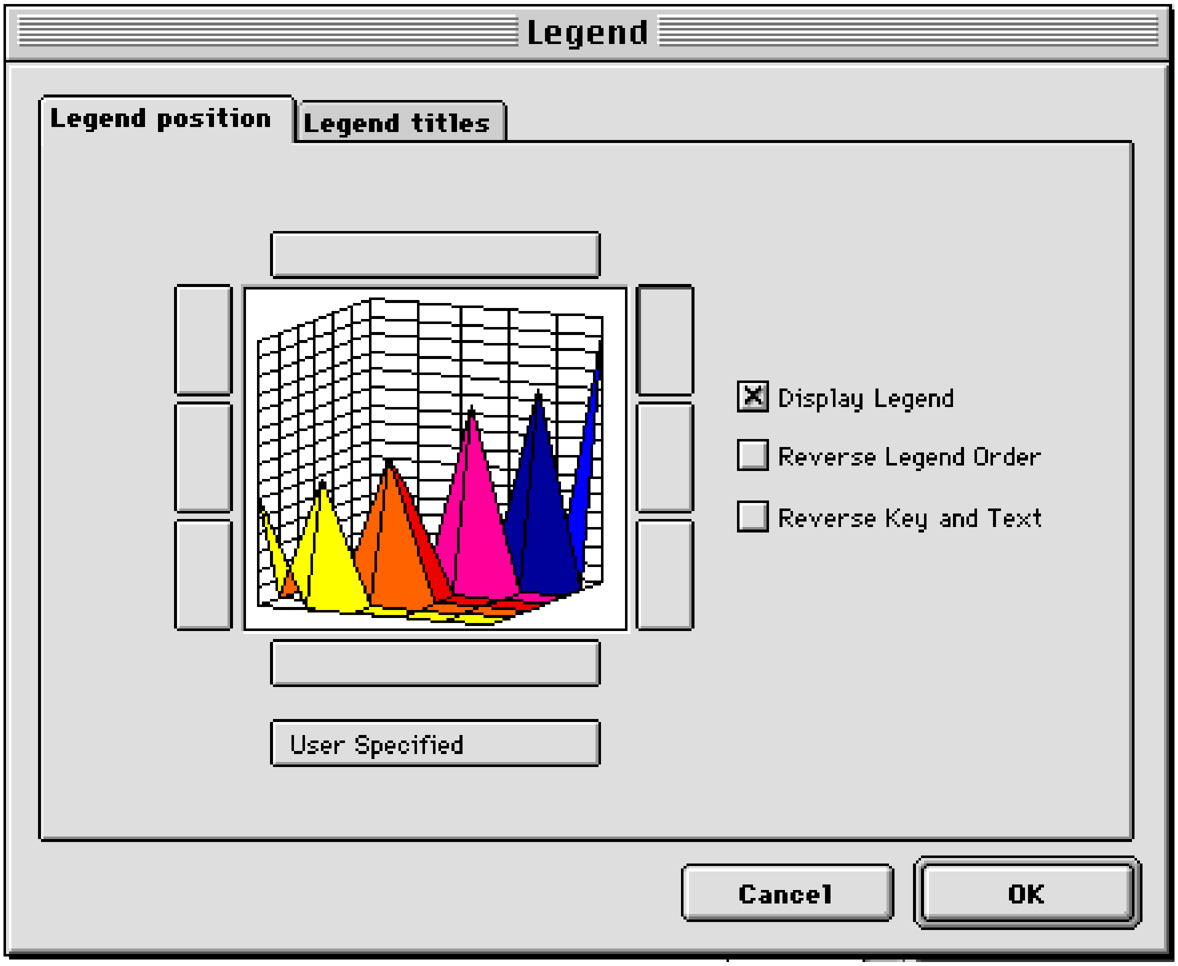
Titles



Legend

The position of the legend and titles of each legend can be modified through the **Chart => Legend** menu item.

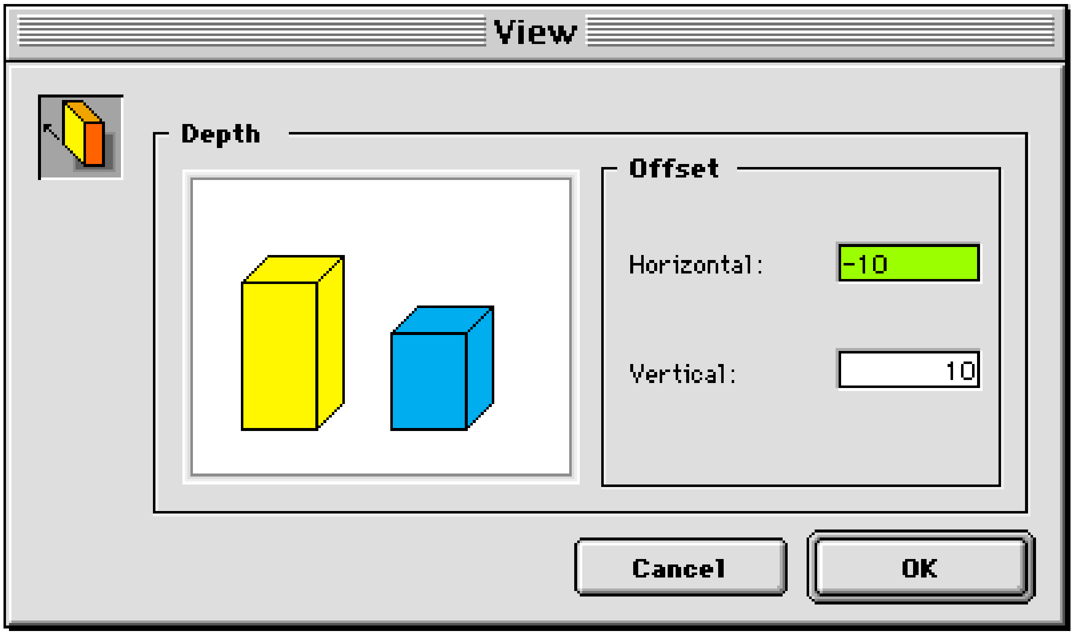
Legend



View

The depth and offset of the chart columns can be modified through the menu item **Chart => View.**

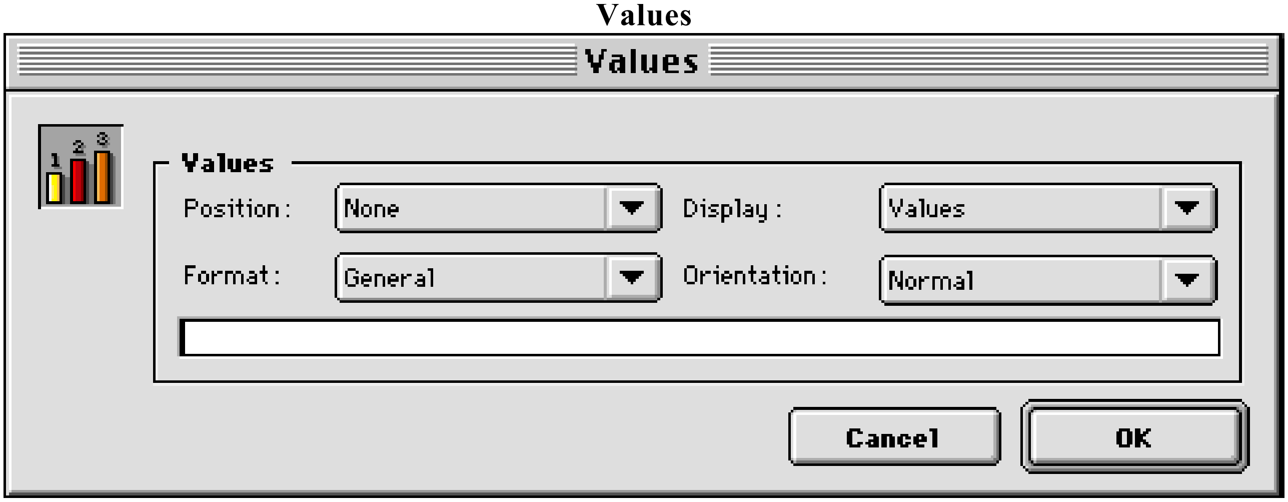
View



Values

The attributes position, format, display and orientation can be modified from the Chart => Values men item.

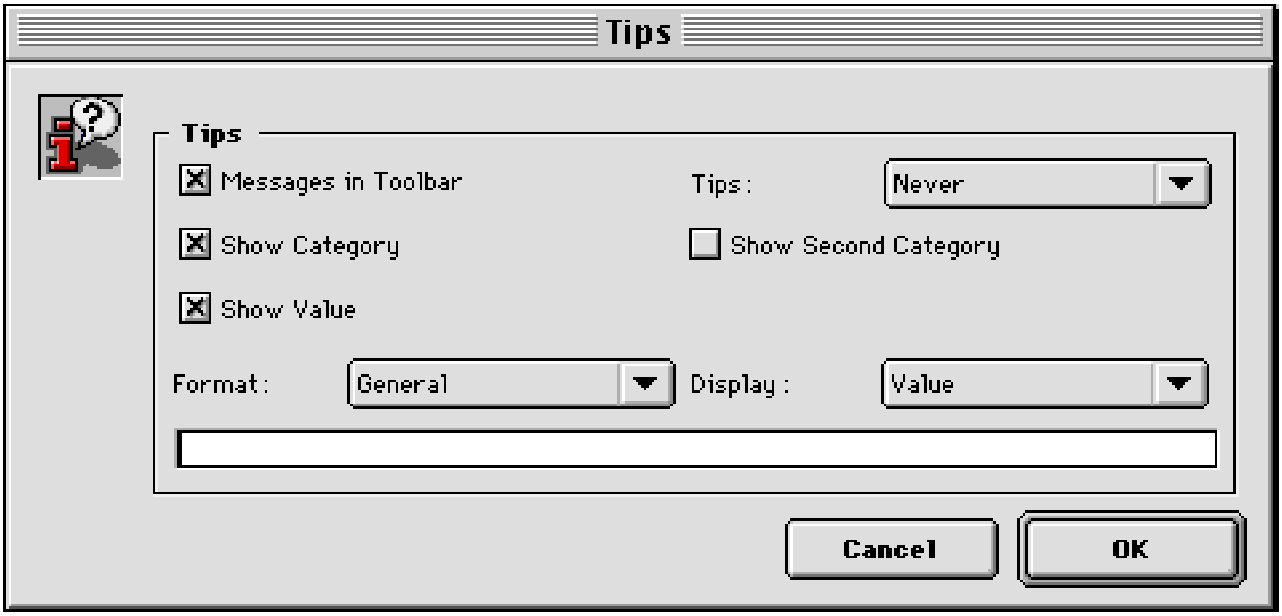
Values



Tips

Tips allow text to be associated with each chart element. The text is can also be displayed in the toolbar. Tips are made visible by simply moving the mouse over the chart.

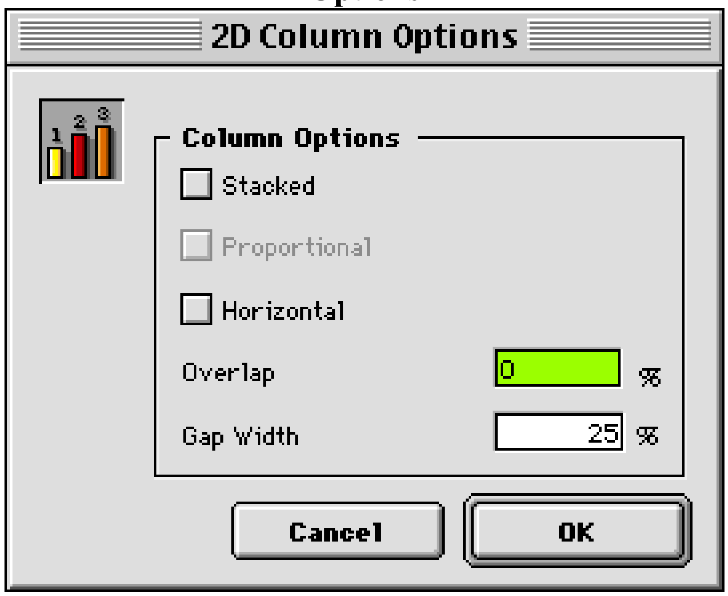
Tips



Options
The appearance of the chart can be modified by changing the settings in the **Chart --> Options** menu item.

NOTE: Each chart type has different options.

Options



Canned Reports & Customizable Letters

Canned reports are developed as part of the NASA TechTracS software code. Therefore, the report cannot be changed by the user. If a canned report is not available that meets your needs, try and see if a quick report can be created to satisfy the data requirements or consult the field center DBA for a modification to NASA TechTracS.

Customizable letters are created in the [Documents] table using 4D Write and are therefore modifiable by the user.

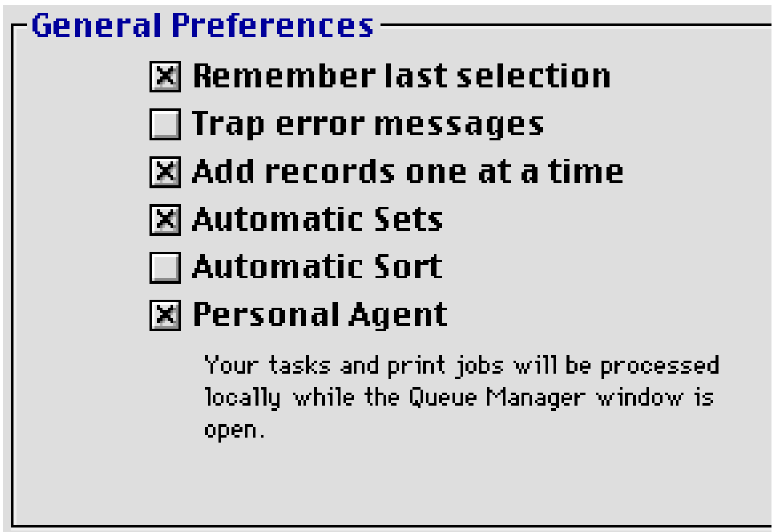
NOTE: Only users who have access to 4D Write can modify 4D Write documents or use the 4D Write Word Processor.

TIP: The original intent of the [Documents] table was to store customizable letters. However, 4D Write can create good looking reports too.

Preferences

Users have the option of printing letters and custom reports by the AutoAgent or the Personal Agent. This is controlled by the Personal Agent preference which is accessed from the **File** => **Preferences** menu item.

Personal Agent Preference



Users also have the option of holding print jobs. This is controlled by the Hold Print Jobs preference.

Hold Print Jobs Preference

Print Function

Overview
Print Dialog
Print Preview

Overview

The Print function is used to present a list of available canned reports and/or letters that are available for the current table. The Print function is available from the following areas of NASA TechTracS:

- **File** => **Print** menu item (of Data Window)

Print Menu Item

- *Print* button icon from the List Window

Print Button from List Window

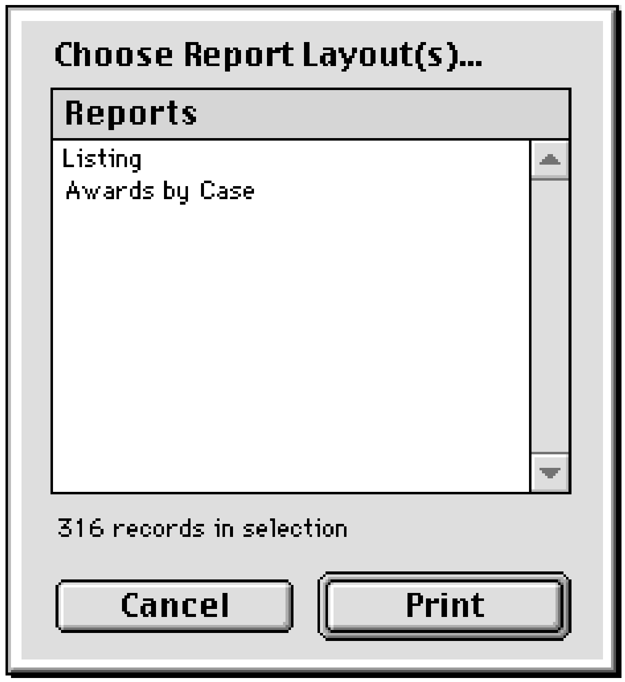
- *Print* button icon from the Record Window

Print Button from Record Window

Print Dialog

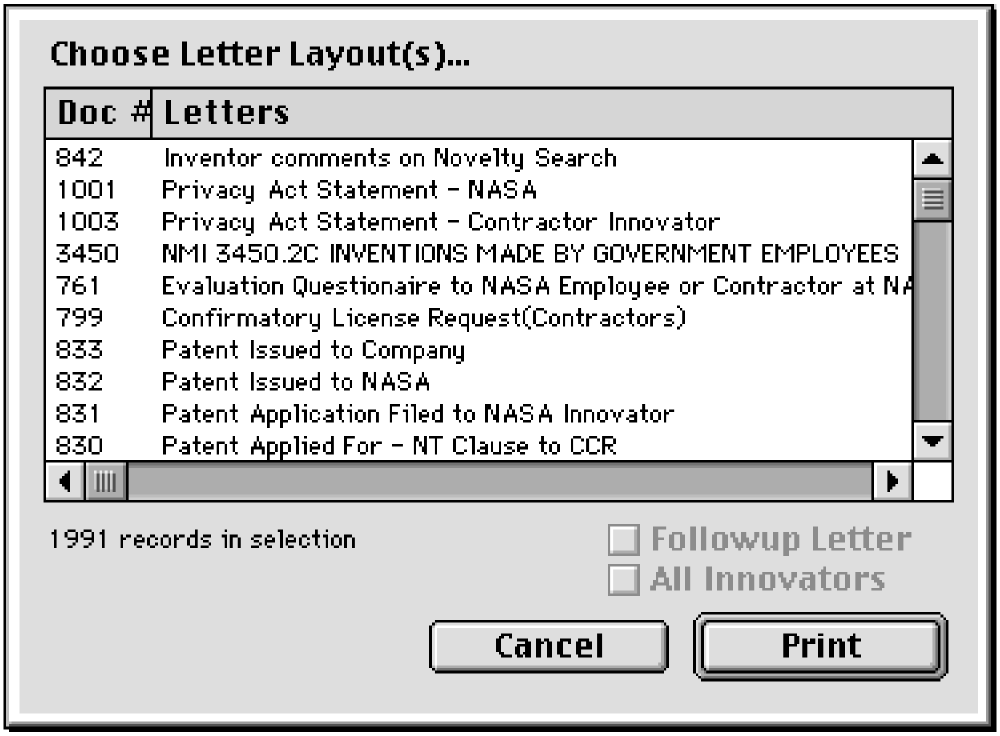
After choosing Print, one of four dialogs will display: 1) Choose Report Layout(s)..., 2) Choose Letter Layout(s)..., or 3) Choose Report and/or Letter Layout(s)..., or 4) No Reports or Letters Alert. Choose Report Layout(s)... dialog is displayed when there are only custom reports for the selected NASA TechTracS table.

Choose Reports Layout(s) Dialog



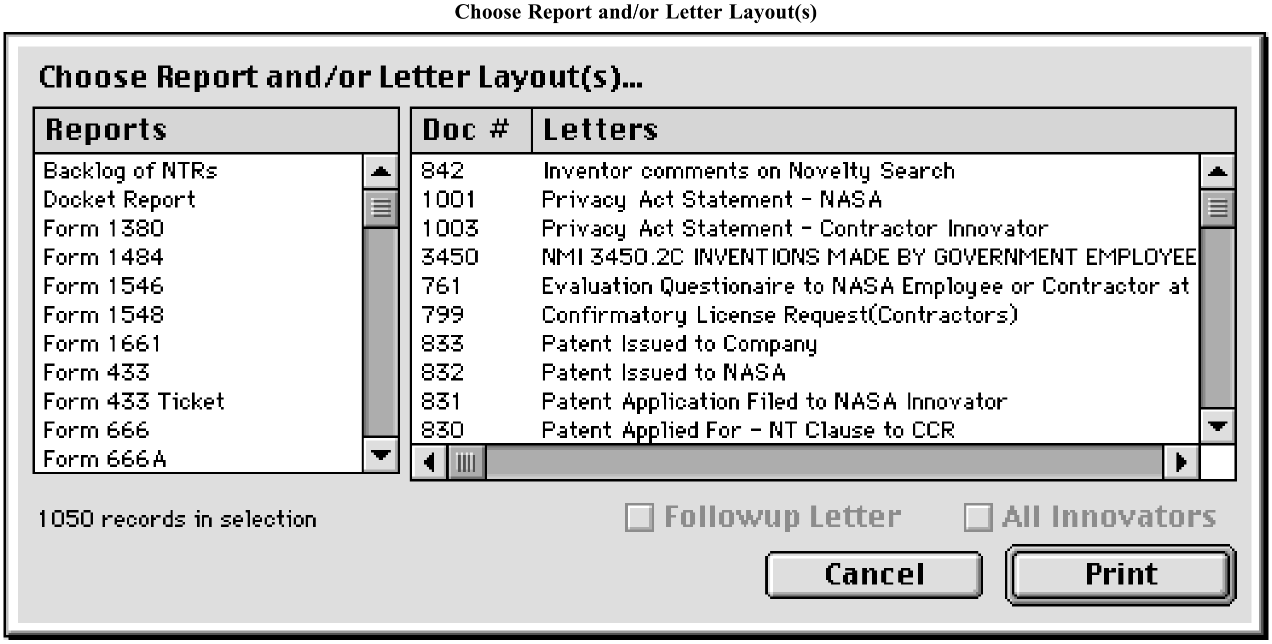
Choose Letter Layout(s)... is displayed when there are only letters available for the selected NASA TechTracS table. Therefore, there are no canned reports available for the current NASA TechTracS table.

Choose Letter Layout(s)



Choose Report and/or Letter Layout(s)...is displayed when there are both custom reports and letters available for the selected NASA TechTracS table.

Choose Report and/or Letter Layout(s)



Customizable Letters

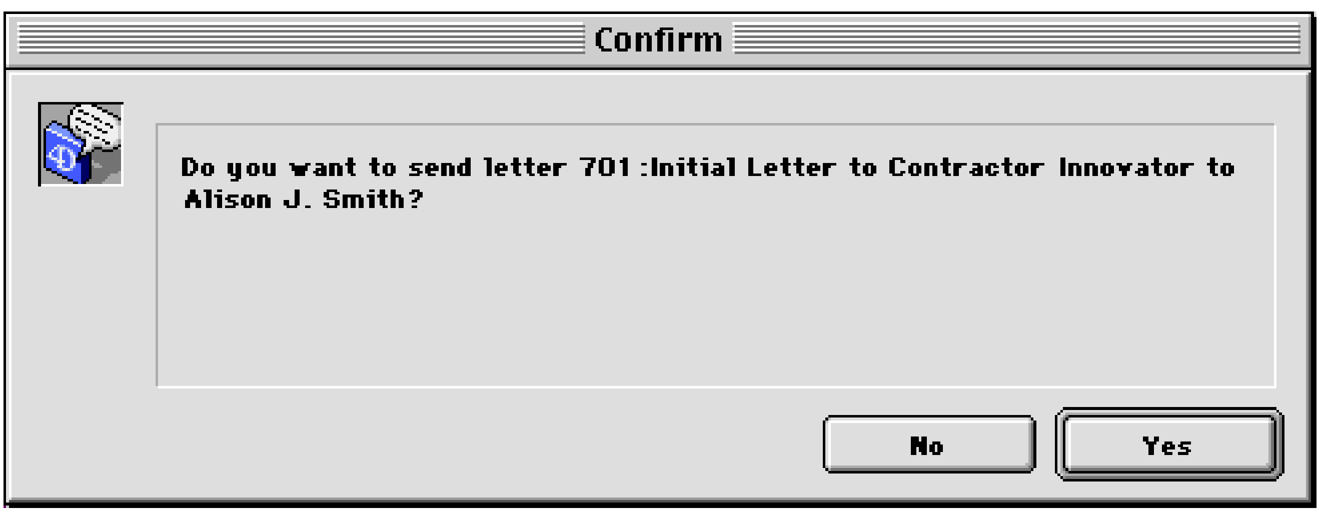
The *Followup Letter* button is used to set the NASA TechTracS expression Flwup to either "" or ":Follow-up". This is useful to place in letters to indicate that the letter is a followup. A good location for the Flwup is in the footer of a 4D Write Document. Use the 4D Write menu **Database** => **Insert 4D Expression...** to place Flwup anywhere in a 4D Write document.

The *All Innovators* button is used to allow the user to select which innovators to print the selected letter to. The default is checked which means that a letter will be printed for all innovators related to the Technology if the letter chosen is directed to innovators.

NOTE: Innovator letters usually have two different styles. One style is the to/from style which is used to send letters to NASA Employees ([People]NASA Employee equals True). The second style is a full address which is used to send letters to contractor innovators ([People]NASA Employee equals false).

NOTE: Document codes between 700 and 799 are used to print letters to NASA Innovators. Document codes between 800 and 899 are used to print letters only to innovators who are NASA employees.

TIP: If you would like to create a new letter that is used to send a letter to all innovators related to a Technology, create 2 new [Document] records. Note: Be sure and not to use the reserved Document Codes. (700, 701, 710, 711, 720, 721, 730, 731, 733, 740, 741, 742, 743, 750, 751, 760, 761, 790,791, 799, 800, 810, 830, 831, 832, 834, 840, 841, 842, 850).

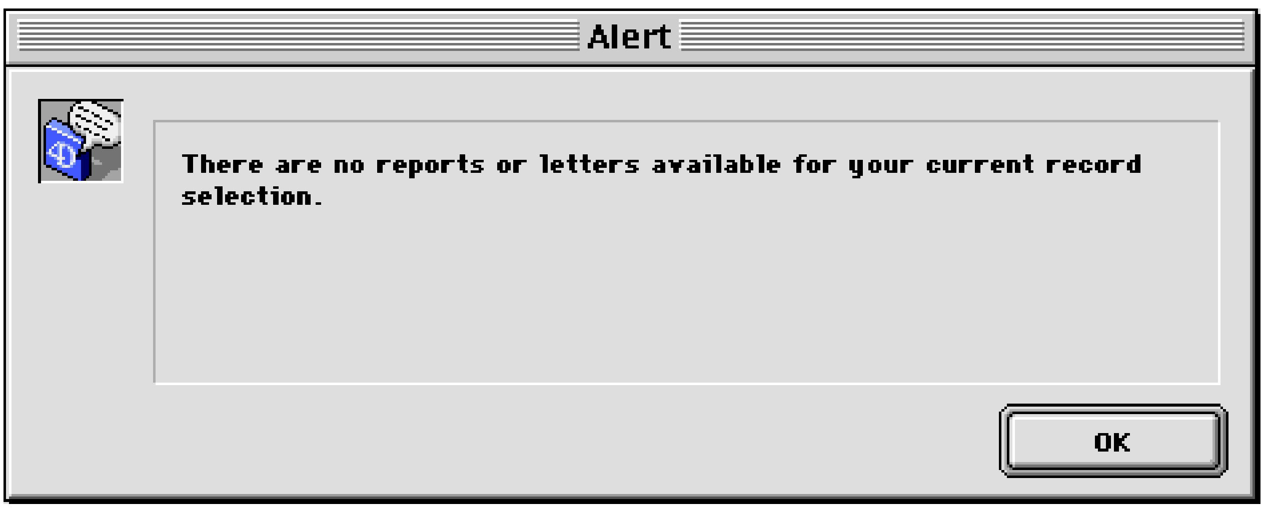


TIP: If your center has a limited number of 4D Write Licenses or more people use 4D Write than the number of 4D Write License, you might find it necessary to use the AutoAgent for printing.

If there are no letters or reports, an alert is displayed saying "There are no reports or letters available for your current record selection."

TIP: Multiple reports and/or letters can be selected at the same time. On the PC, press the Ctrl key and click on the report and/or letter. On the Mac, press the Cmd key and click on the report and/or letter.

No Reports or Letters Alert Dialog



If the Auto Agent is handling your print jobs, then all you need to do is queue up the job from the Print function. To check the status of your print job, activate the Queue Manager by choosing the menu item **Report** =>**Queue Manager...**.

If you have the Personal Agent preference checked, then your print jobs are handled by the Personal Agent. Print jobs handled by the Personal Agent will only print when the queue manager is active. To activate the Queue Manager, choose the menu item **Report** =>**Queue Manager...**.

Print Preview

Canned reports and letters can be previewed by checking the *Print Preview* check box located at the bottom of the Personal Agent Queue Manager Window.

NOTE: If there are no records to print for the letter or report, a message is printed out on the printer indicating that there were "No data for printing report for the following [Process] record".

Canned Reports

There are a number of canned reports available to the user. Some of the reports have settings that are set by the center DBA in the [Constants] table. Below is a list of all available reports from each NASA TechTracS table.

[Action Item]..........................Action Item Report @
....Action Listing
....Action Summary

TIP: Action Item Report can be configured to print out every Monday. Please consult with your Center DBA for configuring the Action Item Report.

[Award Process].....................Listing *

[Awards]................................ Awards by Case
....Listing *

[Awards by Innovator].......... Listing *
....Organization Awards
....Recipient Awards

[Awards Chronology]............ Listings *

[Commercial Leads]...............Summary

[Company]............................Contractor Info

[Contract_Grant]....................CG Tickler
....Contract Statistics
....Contractor and Contracts
....Contracts for Certification
....NTRs By Contract Number
....SBIR Contracts
....SBIR History
....SBIR Monthly

[Multimedia].......................... Print Image
....Briefing Chart

[Partnerships].........................Totals Report
....Organization Code Report
....Detail Report

[Pat Statistics]........................Inv. Disclosures (IDY)
....Inv. Disclosures by FI (IDFI) #
....Patent Apps Filed (PAY)
....Patent Apps Filed by FI (PAFI) #
....Provisional Apps Filed (PPAY)
....Patents Issued in US (PTY)
....Patents Issued by FI (PTFI) #
....Small Entity Summary (SES) #

[Technology]..........................Backlog of NTRs
....Docket Report
....Form 1380 *
....Form 1484
....Form 1546 @
....Form 1548 @
....Form 1661 @
....Form 433 *
....Form 433 Ticket * @
....Form 666 * @
....Form 666a *
....ICT Milestones
....Innovators and NTR Numbers
....LeRC Evaluation
....Listing *
....New Tech Report *
....NTR Information
....NTR Listing
....NTR Number, Date, Title
....Patent Monthly Prosecution
....Patent Quarterly Prosecution
....Published Tech Briefs
....Quarterly TU Activity
....TB Awards *
....Tech Chron. Summary *
....Tech Writer Milestones

[Tech Chronology].................Tech Chron. Summary

** Denotes that Report is only available if there one or more records in the selection of the current table.*

 # Denotes that the Report is only available at NASA HQ.

@ Denote [Constant] table settings available.

1546 (Tech Brief Award)
A checkbox has been added to the print dialog which allows the user to print the report using the current selection of [Technology] records. The [Technology] records are related to the [Awards by Innovator] table and only [Awards by Innovator] records where [Awards by Innovator]Info to HQ field is equal to 00/00/00 are printed on the report.

If the user elects not to print the current selection, then the following [Technology] records are used to create a set of related [Awards by Innovator] records:

- [Technology]TTO Final Class is equal to "1" or [Technology]TTO Final Class is equal to "2"

- (For KSC Only) If [Technology]Contract_Number is not equal to "", then if ([Contract_Grant]Kind of Contract or Grant is equal to "SBIR@") and ([Technology]From CG New Tech Rep is not equal to 00/00/00), then the [Technology] record is added to the set to relate to [Awards by Innovators]

NOTE: The [Awards by Innovator]Info to HQ field must be equal to 00/00/00.

1548 (Minimum Award/Patent Application Filed)
A checkbox is available which allows the user to print the report using the current selection of[Technology] records. The [Technology] records are related to the [Awards by Innovator] table and only [Awards by Innovator] records where [Awards by Innovator]Info to HQ field is equal to 00/00/00 are printed on the report.

If the user elects not to print the current selection, then the following [Technology] records are used to create a set of related [Awards by Innovator] records:

- Application Filing Dt is not equal to 00/00/00

NOTE: The [Awards by Innovator]Info to HQ field must be equal to 00/00/00.

<u>1661 (Software Award)</u>

A checkbox has been added to the print dialog which allows the user to print the report using the current selection of [Technology] records. The [Technology] records are related to the [Awards by Innovator] table and only [Awards by Innovator] records where [Awards by Innovator]Info to HQ field is equal to 00/00/00 are printed on the report.

If the user elects not to print the current selection, then the following [Technology] records are used to create a set of related [Awards by Innovator] records:

- [Technology]Software Award is equal to True

- (For KSC Only) If [Technology]Contract_Number is not equal to "", then if ([Contract_Grant]Kind of Contract or Grant is equal to "SBIR@") and ([Technology]From CG New Tech Rep is not equal to !00/00/00!), then the [Technology] record is added to the set to relate to [Awards by Innovators]

<u>NOTE</u>: The [Awards by Innovator]Info to HQ field must be equal to 00/00/00.

<u>NOTE</u>: For all three reports, the user has the choice of printing a Draft Copy or a Final Copy. If the Draft copy is chosen, then [Awards by Innovator]Info to HQ is not changed. However, if Final Copy is chosen, then [Awards by Innovator]Info to HQ is set to the current date when the report is printed.

<u>NOTE</u>: For all three reports (1546, 1548, 1661), the user can set the [Awards by Innovator]Info to HQ field equal back to 00/00/00 so that it will print out on the report.

<u>TIP</u>: A report can be used as an enclosure to a [Document] record. You must use the enter the exact spelling of the Report as seen in the Print Reports and/or Letters dialog.

Automatic Letters

User Events
Batch Processing

Automatic predefined canned reports and 4D Write letters are handled 2 ways: 1) user events requiring user interaction with NASA TechTracS, or 2) by batch processing by the AutoAgent which checks records in the database against pre-defined rules.

NOTE: In order for any automatic letter to print out, the following conditions must be met:

- The [Constants]Make Letters must be true
- The [Documents]Auto Print field of the automatic letter must be True.
- The [Documents]Copies field of the automatic letter must be greater than 0.

User Events

A user event is when the user interacts with NASA TechTracS by adding or modifying a database record. For example, when a user adds a [Tech Innovator] record in the [Technology] table,

4D Write automatic letters include:

[Contract_Grant] Table User Event Automatic Letters

Code	Title
100	Initial Letter to Contractor - NT Clause
101	Initial Letter to Contractor - Patents Rights (Contractor Clause)
102	Initial Letter to Contractor - Patent Rights (Grantee Clause)

Trigger: Adding a new [Contract_Grant] record.

NOTE: Since the FACS data import once per month loads in contracts, letters 100, 101, 102 will need to be printed manually.

Code	**Title**
110	Initial Letter to NASA Tech Rep - NT Clause
111	Initial Letter to NASA Tech Rep - PR (Contractor Clause)
112	Initial Letter to NASA Tech Rep - PR (Grantee Clause)

Trigger: Adding a new [Contract_Grant] record.

NOTE: Since the FACS data import once per month loads in contracts, letters 100, 101, 102 will need to be manually printed.

Code	**Title**
160	Request at End of Contract to Contractor - NT Clause
161	Request at End of Contract to Contractor - PR (Contractor Clause)
162	Request at End of Contract to Contractor - PR (Grantee Clause)

Trigger: User enters a Date into [Contract_Grant]Date CTO Closed field.

NOTE: [Contract_Grant]Requested Final NTR field must be checked and the [Constants]Final NTR Co field must be checked.

Code	**Title**
170	Request at End of Contract to NASA Tech Rep - NT Clause
171	Req. at End of Contract to NASA Tech Rep - PR (Contractor Clause)
172	Request at End of Contract to NASA Tech Rep - PR (Grantee Clause)

Trigger: User enters a date into [Contract_Grant]Req Signoff from NASA COTR field.

NOTE: [Contract_Grant]Requested Final NTR field must be checked and the [Constants]Final NTR Co field must be checked.

Code	**Title**
175	CG Certification of Compliance to NASA - NT Clause
176	CG Certification of Compliance to NASA - PR (Contractor Clause)
177	CG Certification of Compliance to NASA - PR (Grantee)

Trigger: User enters a date into [Contract_Grant]Date Final NTR Received field or [Contract_Grant]Date Rec Final Signoff from COT field.

NOTE: Both [Contract_Grant]Date Final NTR Received field and [Contract_Grant]Date Rec Final Signoff from COT field must have a date and [Contract_Grant]Issued Cert Compliance Letter field must be checked.

[License] Table User Event Automatic Letters

Code	Title
501	License Receipt Letter
502	License Notification to Inventor

Trigger: User enters a date for License Application Recv'd ([License]License Application Received field).

Code	Title
503	Exclusive License Letter
504	Partially Exclusive Letter
505	Non-Exclusive Letter

Trigger: User selects a Licence type of "E", "N", "P" ([License]License Type).

NOTE: [License]License Application Received must have a date.

Code	Title
507	Letter to Company for Execution

Trigger: User enters a date into [License]Sent to Co for Signature field.

Code	Title
508	Execution Letter

Trigger: User enters a date into [License]Sent to Hq for Execution field.

Code	Title
513	Termination Letter

Trigger: User enter a date in the [License]Termination field.

Code	Title
515	Initial Fee Received

Trigger: User enter a royalty record for Initial Fee and enters initial fee amount.

[Technology]Table User Event Automatic Letters

Code	Title
700	Initial Letter to NASA Innovator
701	Initial Letter to Contractor Innovator

Trigger: User adds a new [Tech Innovator] record.

NOTE: For 800 and 801 letter, [Technology]Origin In House field must be checked or [Technology]Origin Joint field must be checked.

Code	Title
702	Initial Letter to COSMIC

Trigger: User selects COSMIC at 1st or 2nd Evaluator Type.

Code	Title
710	Class 1 - Notify NASA Innovator
711	Class 1 - Notify Contractor Innovator

Trigger: User selects "1" from TTO Final Class. pop-up ([Technology]TTO Final Class field).

NOTE: 2 copies of Form 1380 and 2 copies of Form 666 automatically print with 710 or 711.

Code	Title
720	Class 2 - Notify NASA Innovator
721	Class 2 - Notify Contractor Innovator

Trigger: User selects "2" from TTO Final Class. pop-up ([Technology]TTO Final Class field).

NOTE: 2 copies of Form 1380 and 2 copies of Form 666 automatically print with 710 or 711.

Code	Title
732	Class 3 - No Reevaluation - Notify NASA Innovator
733	Class 3 - No Reevaluation - Notify Contractor Innovator

Trigger: User selects "3" from TTO Final Class. pop-up ([Technology]TTO Final Class field).

Code Title
742 Class 4 - No Reevaluation - Notify NASA Innovator
743 Class 4 - No Reevaluation - Notify Contractor Innovator

Trigger: User selects "4" from 1st Classification pop-up or "4" from TTO Final Class.

NOTE: [Technology]Invention Rejected because field must contain text (cannot be blank).[Technology]Invention Rejected because field is referenced in letter 742 and 743.

Code Title
750 Draft Tech Brief to NASA Innovator
751 Draft Tech Brief to Contractor Innovator

Trigger: User enters date into [Technology]Receive TB Copy from Writer field.

Code Title
752 Tech Brief Copy to NASA Innovator
753 Tech Brief Copy to Contractor Innovator

Trigger: User enters a value into [Technology]Tech Brief Title field, [Technology]TB Month field, [Technology]TB Year field, [Technology]TB Year field.

Code Title
760 Evaluation Questionnaire to Non-NASA
761 Evaluation Questionnaire to NASA Employee or Contractor at NASA

Trigger: User selects [People] record or [Company] record using selector for 1st Evaluator.

Code Title
762 Evaluation Questionnaire to Non-NASA (2nd Evaluation)
763 Evaluation Questionnaire to NASA Employee or Contractor at NASA (2nd Evaluation)

Trigger: User selects [People] record or [Company] record using selector for 2nd Evaluator.

790 Release to Disseminate SBIR Data

Trigger: User selects "1" for TTO Final Class ([Technology]TTO Final Class field) and the related [Contract_Grant] record [Contract_Grant]Kind of Contract field equals "SBIR@".

Code	**Title**
800	Patent Initial Docket Letter to NASA Innovator
801	Patent Initial Docket Letter to NASA Innovator (Non-NASA Employee)

Trigger: User adds a new [Tech Innovator] record.

NOTE: For 800 and 801 letter, [Technology]Origin In House field must be checked or [Technology]Origin Joint field must be checked.

Code	**Title**
810	Patent Inactivated Letter to NASA Innovator
811	Patent Inactivated Letter to NASA Innovator (Non-NASA Employee)

Trigger: User enters [Technology]Inactivated Date field or selects "07" for [Technology]Patent Docket Category field.

Code	**Title**
830	Patent Applied For - NT Clause to CCR
831	Patent Application Filed to NASA Innovator

Trigger: User enters date into [Technology]Application Filing Dt field or enters a value into [Technology]Application SN field.

Code	**Title**
832	Patent Issued to NASA
833	Patent Issued to Company

Trigger: User enters date into [Technology]Patent Issue Date field or enters a value into [Technology]Patent Number field.

Batch Processing

Batch processing occurs on the AutoAgent. The processing is scheduled to execute once per day and is set in the [Constants] table by the center DBA.

[Contract_Grant] Table

Code	Title
160	Request for Final Report to Company (New Technology Clause)
161	Request for Final Report to Company (Patent Rights Retention by Contractor)
162	Request for Final Report to Company (Patent Rights Retention by Grantee)

Trigger: [Contract_Grant]Date Ending- [Constants]FnlRpt Days is less than or equal to the Current date.

NOTE: [Contract_Grant]Requested Final NTR field must be true and [Constants]FnlCGRptbyScan field must be true. [Contract_Grant]Date Request Final NTR field must not be equal to 00/00/00.

Code	Title
170	Request for Final Report to COTR (New Technology Clause)
171	Request for Final Report to COTR (Patent Rights Retention by Contractor)
172	Request for Final Report to COTR (Patent Rights Retention by Grantee)

Trigger: [Contract_Grant]Date Ending- [Constants]FnlRpt Days is less than or equal to the Current date.

NOTE: [Contract_Grant]Req Signoff from NASA COTR field must be true and [Constants]FnlRptNASAbyScan field must be true. [Contract_Grant]Date Req Signoff from NASA COTR field must not be equal to 00/00/00.

190	Interim Contract Report Request
191	Follow-up Interim Contract Report Request
192	Interim Letter (Patent Rights Retention by Grantee)

Trigger: NASA TechTracS determines that an Interim letter is due..

NOTE: [Contract_Grant]Request Interim Report field must be true and [Constants]Interim_Ltr_Co field must be true.

Letter series 160, 170, and 190 can be automatically followed up with a second letter if there is no response to the initial letter. The [Constants]Followup 1 field controls whether follow-up letters are automatically printed. The pre-determined amount of time between the initial letter and the follow-up letter is indicated by the field [Constants]Followup 1 field.

An [Action Item] record can be created for letter series 160, 170 and 190 if there is no response to the initial letter.The [Constants]Flag Followup field controls whether an [Action Item] record is created. The pre-determined amount of time between the initial letter and creation of an [Action Item] record is indicated by the field [Constants]Flag Days .

Customizable Letters

Overview

NASA TechTracS stores various pre-formatted letters & documents for printing combined with data from records from any table in the database. Users can also create their own letters & documents using the various options in NASA TechTracS.

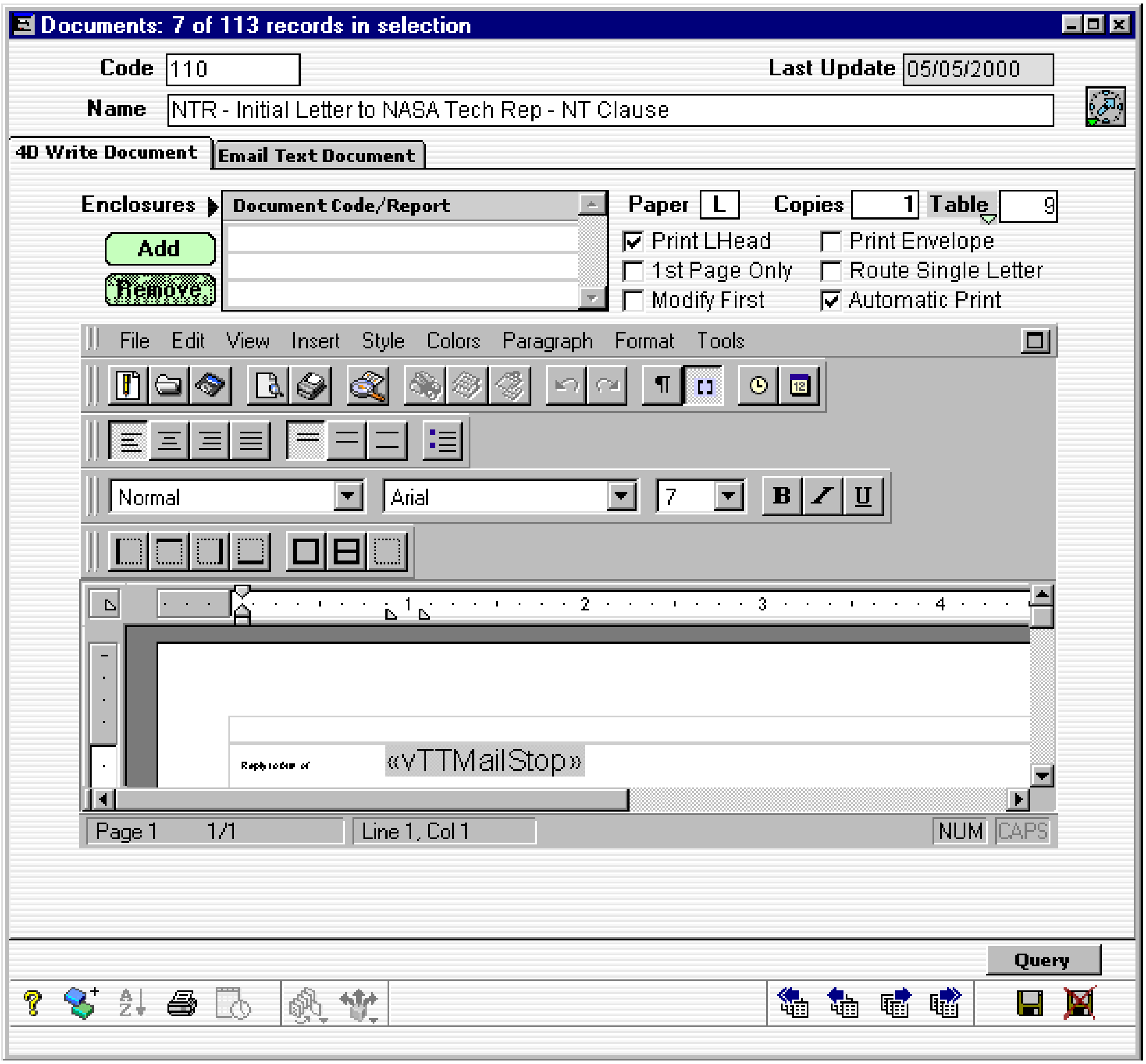
TIP: A letter can be printed from the Data Control Panel by selecting the relevant table from the scrollable list, entering the appropriate "Quick Find" value, and clicking the Print button.

Modifying or Creating a Letter

The NASA TechTracS customizable letters are stored in the [Documents] table.

To customize a letter, double-click a record from the [Documents] table to view or edit the setup options for a specific letter.

Documents Record Window



In the [Document] record window, specify the relevant table, enclosures, type of paper, number of copies, contents, and name of the letter. The popup specifying the table for the letter contains all of the table names in NASA TechTracS. The selection appears as a number representing the position of the table in the database.

The following settings are available in the [Documents] table.

Code - Uniquely identifies the letter and is usually also placed in the right hand footer.

Last Update - The date the letter was last updated.

Title - Document title for user identification.

Enclosures - Most of the time are documents themselves and must be created beforehand.

Paper - The tray from which to print the document. This setting is only useful for print jobs queued to the AutoAgent where automatic tray switching is implemented. Choices are:

A - Multi-purpose tray
E - Envelope
G - Legal
L - Letter

Copies - Indicates how many copies are to be printed.

Table - The table in NASA TechTracS from which the document may be printed.

NOTE: The value stored is the table number. Refer to introduction for a list of table numbers.

NOTE: If Table is set to 10 for [Tech Innovator] table, then the document will be available for printing in both the [Technology] and [Tech Innovator] table.

Print LHead - To print the NASA letter head on the document (see [Constants] table).

1st Page Only - To print the letter head on only the first page.

Modify First - Modify the letter before it is printed. Only available for [License] letters while using the Personal Agent.

Print Envelope - To automatically print 100, 500, 700, 800 series envelopes.

Route Single Letter - Not in use

Automatic Print - To turn on automatic printing of 100, 500, 700, 800 series letters where applicable.

4D Write - The lower half of the window contains the 4D Write word processing area. See 4D Write in Section 05.02.03.

Enclosures

An enclosure is a document that is printed every time its associated document is printed. Click the Add button to add an enclosure. A document cannot be enclosed by itself. For multiple copies, specify a number greater than 1 in the copies field.

If adding a new document, specify a number greater than 1000 for its Code, unless the letter is sent to innovators. Innovator letters are numbered from 699 to 899. Contract Grant letters are numbered from 100 to 199.

The area of the form containing the 4D Write document has its own formatting menu options which are used to insert table fields, variables, and special functions into the document.

Click the button in the upper right corner of the editing area to edit the document in full screen mode.

Click the button in the upper right corner of the document again to return to the document record window.

Importing or Exporting a Letter

Exporting

To export a letter for exchange with other field centers, for archiving purposes or to work with the letter in the NASA TechTracS word processing module, select "Save As" from the "File" menu of the 4D Write editing area. This will cause the Standard Save File dialog to be displayed prompting for a name and place to save the document.

After exporting, the document may be opened and edited from the NASA TechTracS Word processing module with 4D Write.

Importing

To import a letter received from another field center or from an archive, select **File** => **Open** from the **File** menu of the 4D Write editing area.

Emailing Letters

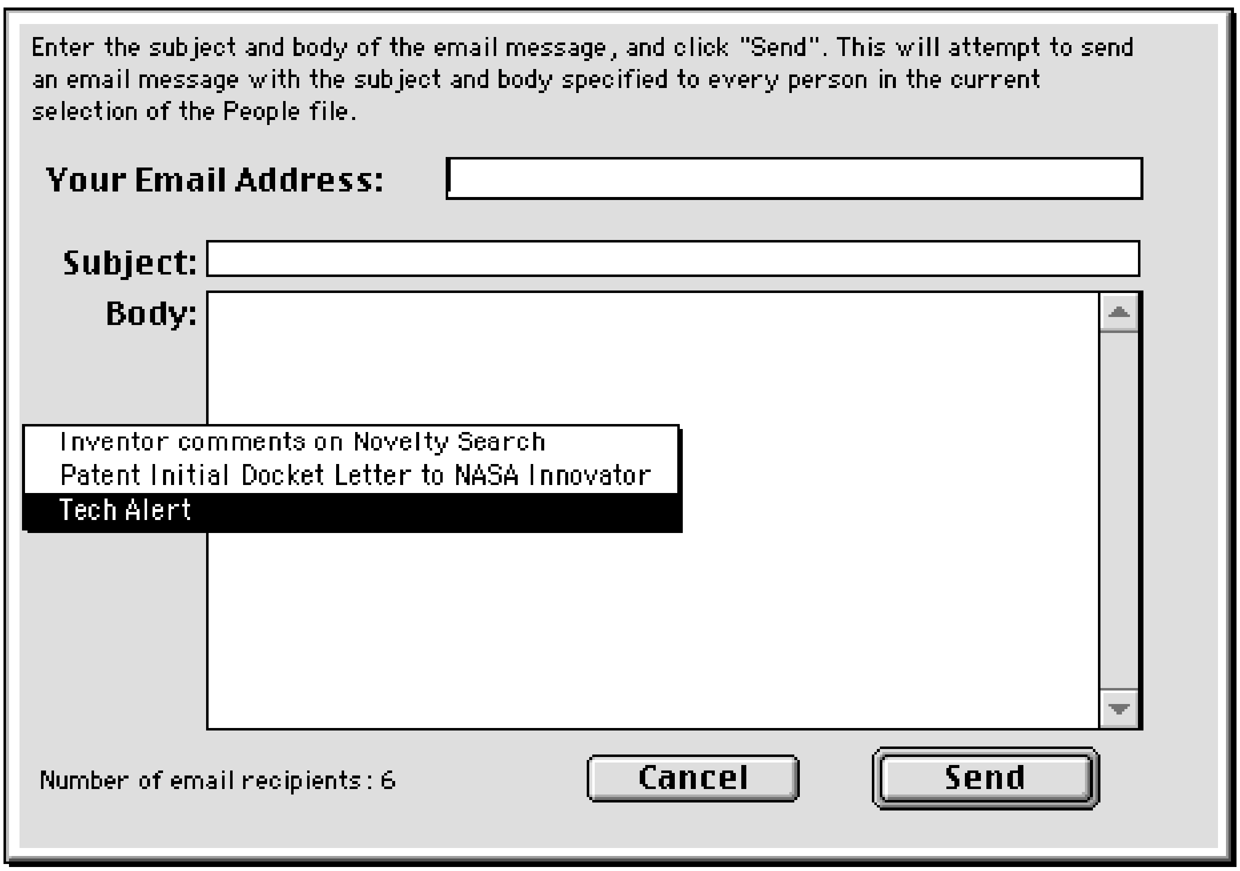
Click the More pop-up of the document input form to modify the optional email parameters of the document. Click on the Get 4D Write Document Text button in the lower right of the form to copy the text of the document from page one of this form into the text area. The checkbox labeled "Show in Email list" can then be checked. This text area is then ready for email or can be further edited.

To use the letter in an email, select the menu **Enter** => **Batch Update Routines...**. Select the Batch Email item. The only requirement is to be viewing the [People] table with one or more records selected.

NOTE: Field references do not merge data field values into email messages.

The following dialog is presented with the Email Choices pop-up on the left which contains all of the letters that can be emailed.

People Email Batch Update Dialog



Tutorials

Tutorial #1: Creating a new Letter in the Documents Table (5 minutes)
Creating a reminder letter to the Contractor reminding them of an interim report.

1. Click in the Code field and type in the first four letters of your last name.

2. Tab to the Title field and type your last name followed by the text "Letter".

3. Click and hold on the Table # popup. Select Contract_Grant. This will make the document available for printing from the Contract_Grant table.

4. Notice that 9 is the table number for Contract_Grant.

5. Paper field will stay at the default of L because we are going to print on letter size paper. Copies will stay at the default of 1 because we only want 1 copy.

6. Check Print LHead check box so that NASA TechTracS will insert the field center letter head in the header of the document.

7. Check 1st Page Only check box so that the field center letter head will only be on the first page.

8. Print Envelope/Route Single Letter/Automatic Print have no meaning on letters that are not automatically printed by NASA TechTracS.

9. Select **File** => **Open** menu and select "MyDoc2.4wr".

10. Save the record by clicking on the *Accept* button.

11. Click *Cancel* if a new blank Document record is displayed..

    NOTE: This step is not required if Preferences Add Records one at a Time is checked.

Tutorial #2: Adding Fields (10 minutes)

1. Click on the fourth line after the mail stop and select **Database** => **Insert field...**.

2. Select the table [Company]. Select the [Company]Name field and click *OK*.

   NOTE: If only "«»" is displayed on the screen then select **Database** => **Show references** from the 4D Write menu to display the field correctly.

3. Add a carriage return after the «[Company]Name» field reference.

4. Select **Database** => **Insert field...** from the 4D Write menu and select the Address field from the Company table. Add a carriage return.

5. Select **Database** => **Insert field...** from the 4D Write menu and select the Co HQ City field from the Company table. Type a "," after the HQ City.

6. Select **Database** => **Insert field...** from the 4D Write menu and select the Co HQ State field from the Company table. Type a <space>.

7. Select **Database** => **Insert field...** from the 4D Write menu and select the Zip field from the Company table. Add two carriage returns.

8. Type "Subject: NASA Contract" on the third line after «[Company]Co HQ City», «[Company]Co HQ State» «[Company]Zip».

9. Select **Database** => **Insert field...** from the 4D Write menu and select the Contract Number field from the Contract_Grant table. Type a "," after the «[Contract_Grant]Contract Number».

10. Select **Database** => **Insert field...** from the 4D Write menu and select the Title from the Contract_Grant table. Add two carriage returns.

11. Click to the left of the word "Subject". Adjust the left hand margin of the paragraph for all lines past the first by moving the left hand margin to position 1-5/8".

    NOTE: The left hand margin is represented by a triangle.

12. Type in the following text on the third line after the subject:

    "Per the clause in your contract, please forward an interim report to the Technology Transfer Office."

13. If the paragraph just entered is not left justified then move the left margin to 7/8".

Tutorial #3: Adding a Footer to Your Document (5 minutes)

1. Select **Format** => **View Footer** from the 4D Write menu.
2. Adjust the right margin to 6-3/4".
3. Create a right tab at position just to the left of 6-3/4".
4. Press the tab key once.
5. Select **Database** => **Insert Fiel**d fro the 4D Write menu.
6. Choose the Documents table and locate and click on the field Code.
7. Click *OK*.
8. Select **Database** => **Show Values** item from the 4D Write menu.
9. Select **Database** => **Show References** from the 4D Write menu.
10. Select **Format** => **View Document** from the 4D Write menu.
11. Select **File** => **Save** from the 4D Write menu.
12. Click the *Accept* button.

Tutorial #4: Printing (5 minutes)

1. Select **File** => **Preferences...**.

2. Make sure that the Personal Agent preference check box is checked.

3. Click *OK*.

4. Select Contract_Grant table from the Data Control Panel.

5. Click *OK*.

6. Select **Select** => **Show All**.

7. Double-click on the record in the selection that matches your center number (ie KSC is 10) which is used as a prefix for contracts and grants. If there are more than one computer being used by a center, then multiply you center number by 2 and double-click on that record in the selection.

8. Click on the *Print* button icon on the left-side of the data input screen.

9. Locate your letter in the right hand list and click the *Print* button.

10. Select **Utilities**=> **Queue Manager...**.

11. Click *OK* to page setup dialog.

12. Click *OK* to print dialog.

13. Close the Queue Manager window.

NASA TechTracS Expressions

Overview

NASA TechTracS expressions are designed to return information that cannot be easily found under a specific format or from a specific table. They have been created for NASA TechTracS by the developer to respond to specific end-user needs. They are intended to be used with the Quick Report editor and 4D Write. It is strongly recommended to master those two tools before using these expressions. Please refer to the 4D Write and Quick Report sections in this manual.

In 4D Write, the expressions are inserted by selecting the **Database** => **Insert 4D Expression...** item from the **Database** menu. Refer to the 4D Write Section.

In the Quick Report editor, the expressions are inserted by adding a new column and entering the expression in the formula editor window that appears. Refer to the Quick Report Section.

The available NASA TechTracS expressions are either used in a specific table or are generic.

NOTE: Where a date (i.e.. !01/01/99!) is used in an example, a 4D date field (i.e. [Technology]NTR Received Date) could be used or the Date expression (Date("01/01/99)) could be used to create a date out of a string.

NOTE: Where a string (i.e.."sometext") is used in an example, a 4D alpha or text field (i.e. [Technology]NTR Title) could be used or the String expression (String[Technology]NTR Received Date)) could be used to create a string out of an expression.

TIP: Use the Data Dictionary (**Utilities=> Data Dictionary**) to find out the field type of a particular field.

[Company]Table...

Name	Description	Example	Result of
Company_Address	Returns the complete HQ address with carriage returns for the current company record	Company_Address	Street Address City, State ZipCode
Company_Name	Returns the company name followed by a carriage return for the current company record.	Company_Name	Name of company
PeopleCompany	Returns the Name of the company for the current company record.	PeopleCompany	Company Name
QRCoCaseNum	Returns list of all Technology Case Numbers, related to all Contracts related to current Company record.	QRCoCaseNum	KSC-12345 KSC-45678 KSC-54321
QRCoCG	For the current Company record, returns a list of related Contract Number(s) and Titles.	QRCoCG	NAS13-96731 "RESTORATION OF ..." NAS13-731 "DATA CONVERSION..."
QRCoPeople Jones	For current Company record, returns the full Name of the related people.	QRCoPeople	John P. Smith John T. etc.

[Contract_Grant] Table

Name	Description	Example	Result of
CaseItems	Queries the Technology table for all records with the current Contract Number and lists their case number, title, and the notification received date. If no records are found, the string "None" will be returned.	CaseItems	KSC-123 Title123 (Received 12/12/96) KSC-456 Title456 (Received 01/01/96)
CC Rep Dept Department	Returns the Department field (Dept) of the Company Contract Representative (Co Contract Rep).	CC Rep Dept	Co Contract Rep Name
CC Rep Name	Returns the First Name and Last Name of the Company Contract Representative (Co Contract Rep).	CC Rep Name	John P. Smith
CC Rep Title	Returns the Title of the Company Contract Representative (Co Contract Rep)	CC Rep Title	Co Contract Rep Title
Contract Grant	Tests the field "Kind of Activity" in the Contract Grant table if it is "Contract Order" or " Research Grant", respectively "Contract" or "Grant" will be returned.	Contract Grant	"Contract" or "Grant"
Contrctr Grntee	Tests the field "Kind of Activity" in the Contract Grant table. Returns the text "contractor" or "grantee" if the field value is "Contract Order" or "Research Grant" respectively.	Contctr Grntee	"contractor" or "grantee"
COTR MC Name	Returns the Mail Code and the Name of the NASA Contract Officer (NASA Cont Ofcr).	COTR MC Name	MS-123/John P. Smith
NT Rep Address	Queries the People table and returns the address of the Company New Technology Representative for the current Contract-Grant.	NT Rep Address	See PeopleAddress
NT Rep Dept	Queries the People table and returns the Department of the Company New Technology Representative for the current Contract-Grant.	NT Rep Dept	"Department Name"
NT Rep Name	Queries the People table and returns the full name of the Company New Technology Representative for the current Contract-Grant.	NT Rep Name	"John P. Smith"

Name	Description	Example	Result of
NT Rep Title	Queries the People table and returns the title of the Company New Technology Representative for the current Contract-Grant.	NT Rep Title	Title
People_CCR	For the current Contract-Grant record, returns the Department, the Name of the person, the Title, the MailStop, and the entire address of the Company Contract Representative (Co Contract Rep).	People_CCR	Department Name John P. Smith Title Street Address City, State ZipCode
People_COTR	For the current Contract Grant record, information is returned about the NASA Technical Point Of Contact after querying the People table. It will consist of: the person's company name, department, name, title and address.	People_COTR	Company Name Department Name John P. Smith Title Street Address City, State ZipCode
People_NASACO if Contract-	For the current Contract Grant record a query is performed on the People table using the NASA Contracting Officer link, The expression returns Mail Code and full name of the person.	People_NASACO	"MS-123/John P. Smith" Smith is linked to Grant as NASA Cont Ofcr.
QRCGCo	For the current Contract Grant record, the associated Company Name, Full Address, and Phone is returned.	QRCGCo	Company Name Street Address City, State ZipCode (123) 456-7890 EXT: 123
ToCompany	Returns the Company Name and Address for the current Contract Grant record.	ToCompany	Company Name & Address
ToCompy_or_CCR information	Returns the Company Name, Company Contract Representative Name, Title, Mail Stop, and Address of the CO Contact Rep for the Contract. If there is no Co Contract Rep, the Company Name and Address will be returned.	ToCompy_or_CCR	CO Contact Rep or Company Name & Address
ToNASATechRep if Contract-	For the current Contract Grant record, returns the Mail Code and Name of the Technical Point of contact after querying the People Table.	ToNASATechRep	"MS-123/John P. Smith" Smith is linked to Grant as NASA Tech POC.

[Inventory] Table

Name	Description	Example	Result of Example
UPN Descript	For the current Inventory record, returns the UPN Description after querying the Program Code table using the 7 Digit UPN field.	UPN Descript	"PROJECT SUPPORT" if 7 Digit UPN is 5948410.

[List] Table

Name	Description	Example	Result of Example
Expandarray	Returns the expanded array value for the field values.	Expandarray("Docket Category";[Technology] Patent_Docket_Category;2)	01-Disclosure (if [Technology]Patent Docket Category = 01)

NOTE : Only applies to those list that are stored in the [List] table.

[People] Table..

Name	Description	Example	Result of Example
HomeAddress	For the current record in the People table, the Home Address of the person. If there is none, nothing will be returned.	HomeAddress	Home Street Address Home City, State Zip
Last Name	When given the People Code, returns the corresponding Last Name. This function queries the People Table.	Last Name([Contract_Grant]C_G New Tech Rep People Code)	"Smith" if Smith is linked to Contract-Grant.
MStop_PName	For the current People record, this expression will return the Mail Code and the First Name if the "Mail toContractor's NASA Mail Code" is checked. If not, the First Name, Middle Initial, and Last Name will be displayed instead.	MStop_PName	"MS-123/John" or "John P. Smith"
Org Name	Queries the Org Codes tables and returns the Name field for the record matching the passed Org Code.	Org Name([People]Org Code)	Organization Name
PeopleAddress	For the current People record, the Home Address will be returned if the field "Address correspondence to home" is checked. If not, the regular address with the Mail code will be returned.	PeopleAddress	Street Address City, State Zip
PeopleCompDept	Returns the Company Name and the Department (Dept) for the current People record, if the field "Address correspondence to home" is not checked.	PeopleCompDept	Company Name Person's Department
PeopleFax	Returns a formatted fax number for the current People record.	PeopleFax	(123) 456-7890
PeopleHome	For for the current people record, returns the address of the person.	PeopleHome	Street Address City, State Zip
PeopleMailStop	If the field "Address correspondence to home" is not checked, the Mail Code for the current People record will be returned. If the field is checked, a blank string will be returned.	PeopleMailStop	"M.S. 1234" if Mail Code is 1234.
PeopleName or **PeopleNameX**	Returns the full name from a People record. The People table will be queried if the people code is supplied as a parameter. PeopleNameX returns "Unassigned" if there is no name.	PeopleName PeopleName([TOPS]CTO POC)	"John P. Smith" "John P. Smith" after query.

PeoplePhone	Returns a formatted phone number for the current People record.	PeoplePhone	(123) 456-7890
PeopleTitle	Returns the title of the current people record.	PeopleTitle	Person's Title
People_Eval	For the current People record, returns: person's company name, department, name, title, mailstop and address	People_Eval	Company Name Department Name John P. Smith Title Mailstop Street Address City, State ZipCode
People_INN	For the current People record, returns: person's company name, department, name, mailstop and address	People_INN	Company Name Department Name John P. Smith Mailstop Street Address City, State ZipCode
People_INNASA	For the current People record, returns: person's company name, department, name, title and address	People_INNASA	Company Name Department Name John P. Smith Title Street Address City, State ZipCode
SSN	Returns a formatted Social Security Number for the current People record if the user is in the "Classified" security group.	SSN	"123-45-6789" or "Classified"

[Technology] Table

Name	Description	Example	Result of Example
AttorneyName	Lists the name of the attorney specified in the selected Technology records. If there is none, a blank field will be returned.	AttorneyName	John P. Smith
CC CompTR	If the Technology record has a Contract Number, this 4D expression will query the corresponding Company New Technology Representative (Co New Tech Rep) and return "CC" and his mail code, first name, and last name. If there's no Contract Number or no assigned Co New Tech Rep, a blank field will be returned.	CC CompTR	CC: MS-123/John P. Smith
CoNewTechRep	Queries the People table for the Company New Technology Representative associated with the Contract Number in the corresponding Contract Grant record. It will return the Department, Name, Title and Address for this person	CoNewTechRep	Department Name John P. Smith Title Street Address City, State ZipCode
Month Name	Returns the Name of the month for the current Technology record, T TB Pub Month field.	Month Name	Name of month
MStop_Evaluator	For the current Technology record, returns the Mail Code and Name of the Technology Evaluator if present. Pass "1" for first evaluator. Pass "2" for second evaluator.	MStop_Evaluator(1)	"MS-123/John P. Smith" if Smith is linked to Technology as T Eval Code
Org Name	Queries the Org Codes tables and returns the Name field for the record matching the passed Org Code.	Org Name([People]Org Code)	Organization Name
People_Company	Returns the Name of the Company and its Address for the one company that is related to the Contract Number of the current Technology record. After this expression, both a Contract-Grant record and a Company record are loaded.	People_Company	Company_Name Company_Address
PrepNameExtn	Returns the full Name and and Phone extension of the Technology Preparer.	PrepNameExtn	"John P. Smith 123" if Smith is Preparer for Technology and 123 is his extension.

Name	Description	Example	Result of
PrepNameTitle	Returns the full Name and Title of the Technology Preparer. If none, nothing will display.	PrepNameTitle	"John P. Smith PersonTitle"
TechItem	Expands "TM" and "BN" Report Number field for the current Technology record.	TechItem	"Technical Memorandum 1234" if TM or "Patent Disclosure 1234" if BN else "New Technology Item"
TechInnovators	Returns list of names of innovat- ors for the current Technolo- gy record.	TechInnovators	John P. Smith John T. Jones etc.
Tech_INN_POC	For the POC Tech Innovator, returns: person's company name, department, name, mailstop and address	Tech_INN_POC	Company Name Department Name John P. Smith Mailstop Street Address City, State ZipCode
Tech_Evaluator	For the current Technology record, returns the Company Name and Address of the Technology Evaluator according to its type (COSMIC, Organization, or Person). Pass a 1 for the first evaluator, 2 for 2nd evaluator.	Tech_Evaluator(1)	Company Name & Address for COSMIC or Organization; *People_Eval* otherwise.
ToCompfrmTech	Returns the Company Name and Address for the Contract-Grant record related to the current Technology record.	ToCompfrmTech	Company Name & Address
ToCompy_or_Eval	For the current Technology record, returns the Address. Pass "0" or "1" as a paramater to get either the Name and Address or the Name and Mail Code. If the Technology Evaluation Code (T Eval Code) is a Person ("P"), then company contact's Address or Mail Code will be returned. If "T Eval Code" is an Organization ("O"), the Company's Address or Mail Code will be returned.	ToCompy_or_Eval(1) ToCompy_or_Eval	*PeopleName* and *PeopleMailStop* *PeopleName* and *CompanyName* or *PeopleName* and *PeopleAddress* or *Company_Name* and *Company Address*

[Tech Org Codes] Table

Name	Description	Example	Result of Example
TechOrgCodes	Returns list of Org Codes separated by semicolons of Tech Org Codes related to a Technology record.	TechOrgCodes	"DE; DT; FE"

Generic

Name	Description	Example	Result of Example
Current Date	Returns the current date	Curent Date	6/30/99
Current Time	Returns the current time	Current Time	14:20:20
Current User	Returns the name of the Current User	Current User	Dianne Cheek
Date(string)	Returns the date of a string	Date("01/01/99")	01/01/99
Day Number(date)	Returns the number representing the weekday on which the date falls Sunday = 1 Monday = 2 Tuesday = 3 Wednesday = 4 Thurdsay = 5 Friday = 6 Saturday = 7	Day Number("!6/29/99!")	3
Day of(date)	Returns the day of the month of date.	Day of ([Technology]NTR Received Date)	25
Due Date(number)	Returns the date determined by adding the specified number of days to the current date.	Due Date(10)	"4/20/98" if current date is 4/10/98
ExpTBCategory	Returns the T.B. Category for the specified code. See the TB Category list.	ExpTBCategory(2)	Electronic Systems
FromPrpMS_Title	Returns the Title of the Technology Preparer and his/her Mail Stop related to the current Technology record. If none has been assigned to the Technology record, the name of the Tech Transfer Officer and Installation or Mailstop.	FromPrpMS_Title FromPrpMS_Title(0) FromPrpMS_Title(1)	MS-123/Preparer Title TTO Name & Installation TTO Name & Mailstop
GetMonthName	Returns the month name for the specified date.	GetMonthName([Technology]Last Updated)	"January" if Last Updated is 01/10/98.

Name	Description	Example	Result of
GetMonthNumber	Returns the two character number representing the the month number of the specified month name.	GetMonthNumber([Techn-ology]TB Month)	"05" if Pub Month is May.
Lowercase(string)	Returns the string with all alphabetic characters in lowercase.	Lowercase("JOHN")	"john"
MonthEnd	Returns the date of the last day of the month for the supplied date.	MonthEnd([Technology] Application Filing Dt)	"5/30/98" if Filing Dt is 5/10/98.
Month of(date)	Number indicating the month of date	Month of (!12/10/99!)	12
NTISDescription	Queries the NTIS Subs table and returns the NTIS description that matches the 4 character NTIS code passedto this 4D expression.	NTISDescription(NTIS Code)	"GRAPHICS COMMUNICATION" if NTAS Code is 45E.
Org_BName	After querying the People table using the passed people code, returns the organization code and its name.	Org_BName([TOPS]CTO POC)	Org Name of CTO POC people record.
Region	Returns the name of the region containing the specified state. The regions are: Far West, South East, Mid-Cont, Mid-West, Mid-Atlantic, Northeast, Unknown	Region([People]State)	"South East" if State is FL.
Sal	Returns the Salutation of the People record referenced by the specified People Code after querying the People table.	Sal([TOPS]CTO POC)	"Miss", "Mr.", "Dr.", etc.
Sal and LName Jones", etc.	Returns the Salutation and Last Name of the People record referenced by the specified People Code after querying the People table.	Sal and LName([TOPS]CTO POC)	"Miss Smith", "Mr.
SICDescription	Returns the Standard Industrial Classification description for the specified SIC code.	SICDescription([Company]SIC Code)	"KNITTING MACHINES" if SIC Code is 508493.
Uppercase	Returns the string with all alphabetic characters in uppercase.	Uppercase("john"0	"JOHN"
vTTName	Returns the Name of the Technology Transfer Officer.	vTTName	As shown in Constants record.
vTTTitle	Returns the Title of the Technology Transfer Officer.	vTTTitle	As shown in Constants record.
vTTMailStop	Returns the Mail Stop of the Technology Transfer Officer.	vTTMailStop	As shown in Constants record.

Name	Description	Example	Result of
vTTPhone	Returns the Phone number of the Technology Transfer Officer.	vTTPhone	As shown in Constants record.
vPATName	Returns the Name of the Patent Counsel.	vPATName	As shown in Constants record.
vPATTitle	Returns the Title of the Patent Counsel.	vPATTitle	As shown in Constants record.
vPTMailStop	Returns the Mail Stop of the Patent Counsel.	vPTMailStop	As shown in Constants record.
vPATPhone	Returns the Phone number of the Patent Counsel.	vPATPhone	As shown in Constants record.

String Function

String (expression{; format}) String

Parameter	Type	Description
expression		Expression for which to return the string form (can be Real, Integer, Long Integer, Date, or Time)
format	String | Number	Display format
Function result	String	String form of the expression

The command *String* returns the string form of the numeric, date, or time parameter that is passed to the expression.

If you do not pass the optional format parameter, the string is returned with the appropriate default format. If you pass format, you can force the result string to be of a specific format.

Numeric Expressions

If expression is a numeric expression (Real, Integer, Long Integer), you can pass an optional string format. Following are some examples:

Example	Result
String(2^15) ` Use default format	32768 (Default format used here)
String(2^15;"###,##0 Inhabitants")	32,768 Inhabitants
String(1/3;"##0.00000")	0.33333
String(1/3) ` Use default format	0.3333333333333333 (Default format used here)
String(Arctan(1)*4)	3.1415926535897931 (Default format used here)
String(Arctan(1)*4;"##0.00")	3.14
String(-1;"&x")	0xFFFFFFFF
String(-1;"&$")	$FFFFFFFF
String(0 ?+ 7;"&x")	0x80
String(0 ?+ 7;"&$")	$80
String(0 ?+ 14;"&x")	0x4000
String(0 ?+ 14;"&$")	$4000
String(Num(1=1);"True;;False")	True
String(Num(1=2);"True;;False")	False

Date Expressions

If expression is a Date expression, the string is returned using the default country format (i.e., MM/DD/YY for the U.S. English language version).

You can pass an optional numeric format from the following table:

Format	Name	Example
1	Short	12/29/96
2	Abbreviated	Sun, Dec 29, 1996
3	Long	Sunday, December 29, 1996
4	MM/DD/YYYY	12/29/96 or 12/29/1896 or 12/29/2096
5	Month Date, Year	December 29, 1996
6	Abbr: Month Date, Year	Dec 29, 1996
7	MM/DD/YYYY Forced	12/29/1996

String Comparisons

Operation	**Syntax**	**Returns**	**Expression**	**Value**
Equality	String = String	Boolean	"abc" = "abc"	True
			"abc" = "abd"	False
Inequality	String # String	Boolean	"abc" # "abd"	True
			"abc" # "abc"	False
Greater than	String > String	Boolean	"abd" > "abc"	True
			"abc" > "abc"	False
Less than	String < String	Boolean	"abc" < "abd"	True
			"abc" < "abc"	False
Greater than or equal to	String >= String	Boolean	"abd" >= "abc"	True
			"abc" >= "abd"	False
Less than or equal to	String <= String	Boolean	"abc" <= "abd"	True
			"abd" <= "abc"	False

Numeric Comparisons

Operation	Syntax	Returns	Expression	Value
Equality	Number = Number	Boolean	10 = 10	True
			10 = 11	False
Inequality	Number # Number	Boolean	10 #11	True
			10 # 10	False
Greater than	Number > Number	Boolean	11 > 10	True
			10 > 11	False
Less than	Number < Number	Boolean	10 < 11	True
			11 < 10	False
Greater than or equal to	Number >= Number	Boolean	11 >= 10	True
			10 >= 11	False
Less than or equal to	Number <= Number	Boolean	10 <= 11	True
			11 <= 10	False

Date Comparisons

Operation	Syntax	Returns	Expression	Value
Equality	Date = Date	Boolean	!1/1/97! =!1/1/97!	True
			!1/20/97! =!1/1/97!	False
Inequality	Date # Date	Boolean	!1/20/97! # !1/1/97!	True
			!1/1/97! # !1/1/97!	False
Greater than	Date > Date	Boolean	!1/20/97! > !1/1/97!	True
			!1/1/97! > !1/1/97!	False
Less than	Date < Date	Boolean	!1/1/97! < !1/20/97!	True
			!1/1/97! < !1/1/97!	False
Greater than or equal to	Date >= Date	Boolean	!1/20/97! >=!1/1/97!	True
			!1/1/97!>=!1/20/97!	False
Less than or equal to	Date <= Date	Boolean	!1/1/97!<=!1/20/97!	True
			!1/20/97!<=!1/1/97!	False

Time Comparisons

Operation	Syntax	Returns	Expression	Value
Equality	Time = Time	Boolean	?01:02:03? = ?01:02:03?	True
			?01:02:03? = ?01:02:04?	False
Inequality	Time # Time	Boolean	?01:02:03? # ?01:02:04?	True
			?01:02:03? # ?01:02:03?	False
Greater than	Time > Time	Boolean	?01:02:04? > ?01:02:03?	True
			?01:02:03? > ?01:02:03?	False
Less than	Time < Time	Boolean	?01:02:03? < ?01:02:04?	True
			?01:02:03? < ?01:02:03?	False
Greater than or equal to	Time >= Time	Boolean	?01:02:03? >=?01:02:03?	True
			?01:02:03? >=?01:02:04?	False
Less than or equal to	Time <= Time	Boolean	?01:02:03? <=?01:02:03?	True
			?01:02:04? <=?01:02:03?	False

Date Operators

Operation	Syntax	Returns	Expression	Value
Date difference	Date – Date	NNumber	!1/20/97! – !1/1/97!	19
Day addition	Date + Number	Date	!1/20/97! + 9	!1/29/97!
Day subtraction	Date – Number	Date	!1/20/97! – 9	!1/11/97!

Number Operators

Operation	**Syntax**	**Returns**	**Expression**	**Value**
Addition	Number + Number	Number	2 + 3	5
Subtraction	Number – Number	Number	3 – 2	1
Multiplication	Number * Number	Number	5 * 2	10
Division	Number /Number	Number	5 / 2	2.5
Longint division	Number \ Number	Number	5 \ 2	2
Modulo	Number % Number	Number	5 % 2	1
Exponentiation	Number ^ Number	Number	2 ^ 3	8

String Operators

Operation	**Syntax**	**Returns**	**Expression**	**Value**
Concatenation	String + String	String	"abc" + "def"	"abcdef"
Repetition	String * Number	String	"ab" * 3	"ababab"

Tutorials

Tutorial #1 - NASA TechTracS Expressions in a Quick Report (10 minutes)

1. Select **Technology** table from the Data Control Panel.

2. Click the *OK* button from the Data Control Panel.

3. Select **Query Editor** from the pop-up query icon (magnifying glass symbol) on the bottom of the
screen.

4. Click the *Load* button to open previously saved query "**TechQuery1.4qf**" and click on *Query*
button.

5. From the **Utilities** menu, select **Utilities** => **Quick Report**...

6. From the **File** menu, select **File** => **Open**... and select **TechReport1.4qr**.

7. Click on the **[Technology]T Title** column.

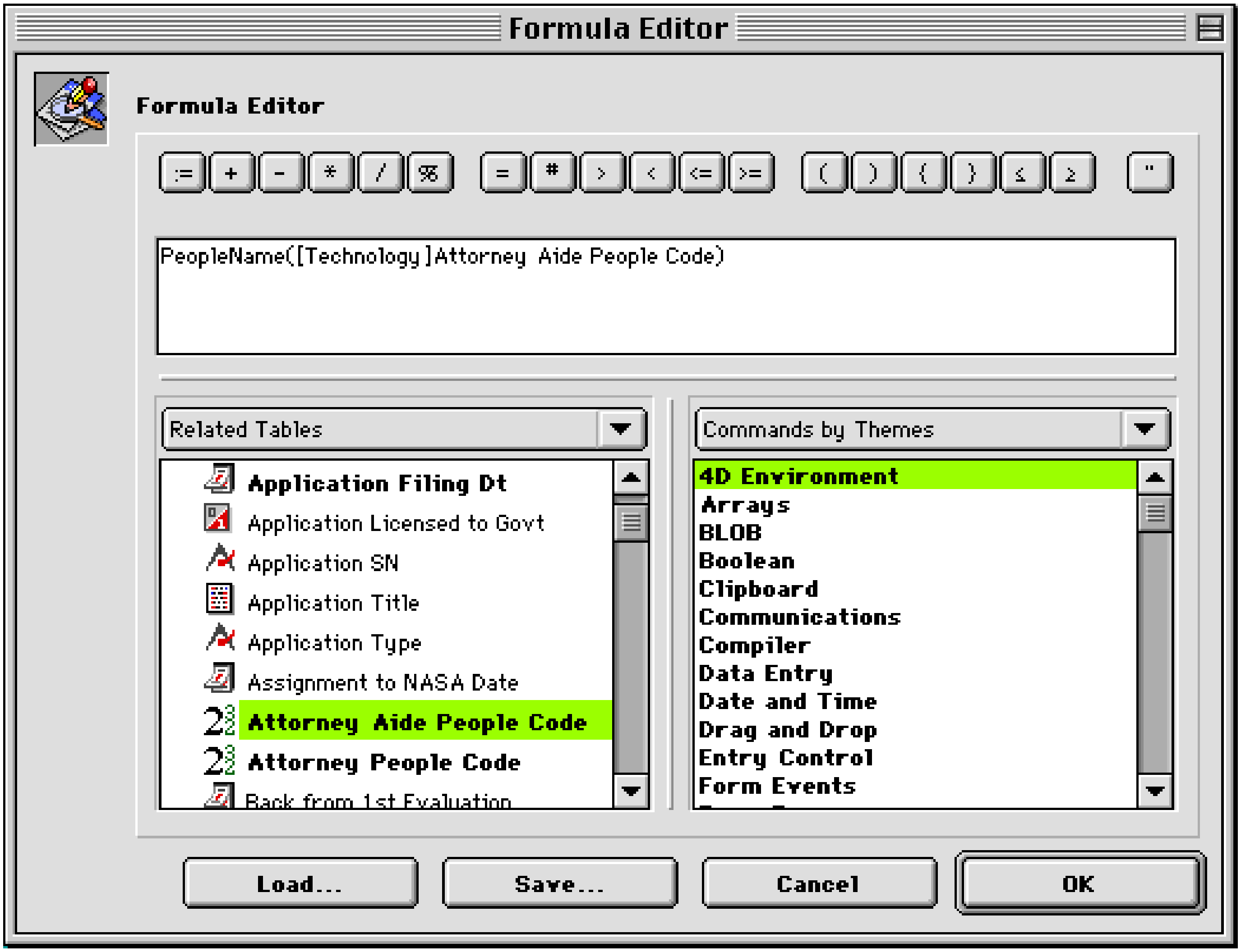
8. From the **Edit** menu, select **Edit** => **Insert Column**...

9. Type "PeopleName(".

10. Locate the **[Technology]P Attorney Code** field and double-click on it.

11. Type ")".

12. Click the *OK* button.



13. From the **Style** menu, select **Style** => **Bold**...

14. Uncheck **Automatic Width**. Resize column C1 to be 1-1/2 inches.

15. Type "Attorney" in the header cell for C1.

	[Technology]	[Technology	C1	[Technology]NTR Title
Header	Case Number	Received Date	Attorney	Title
Detail				
Total				
	0 1 2 3 4 5 6 7			

16. **From the File** menu, select **File** => **Print Preview**...

17. Click the *Stop* button.

18. From the **File** menu, select **File** => **Save as**... and type "TechReport4.4qr" as the filename.

Tutorial #2: NASA TechTracS Expressions in a 4D Write Document (5 minutes)

1. From the Data Contol Panel, select the **Documents** table.

2. Enter your letter document **Code** in the Quick Find box.

3. Click the *OK* button.

4. Zoom the window by selecting **File** => **Go to full window** from the **File** menu.

5. Double-click on the mail stop text.

6. From the **Database** menu, select **Database** => **Insert 4D Expression...**

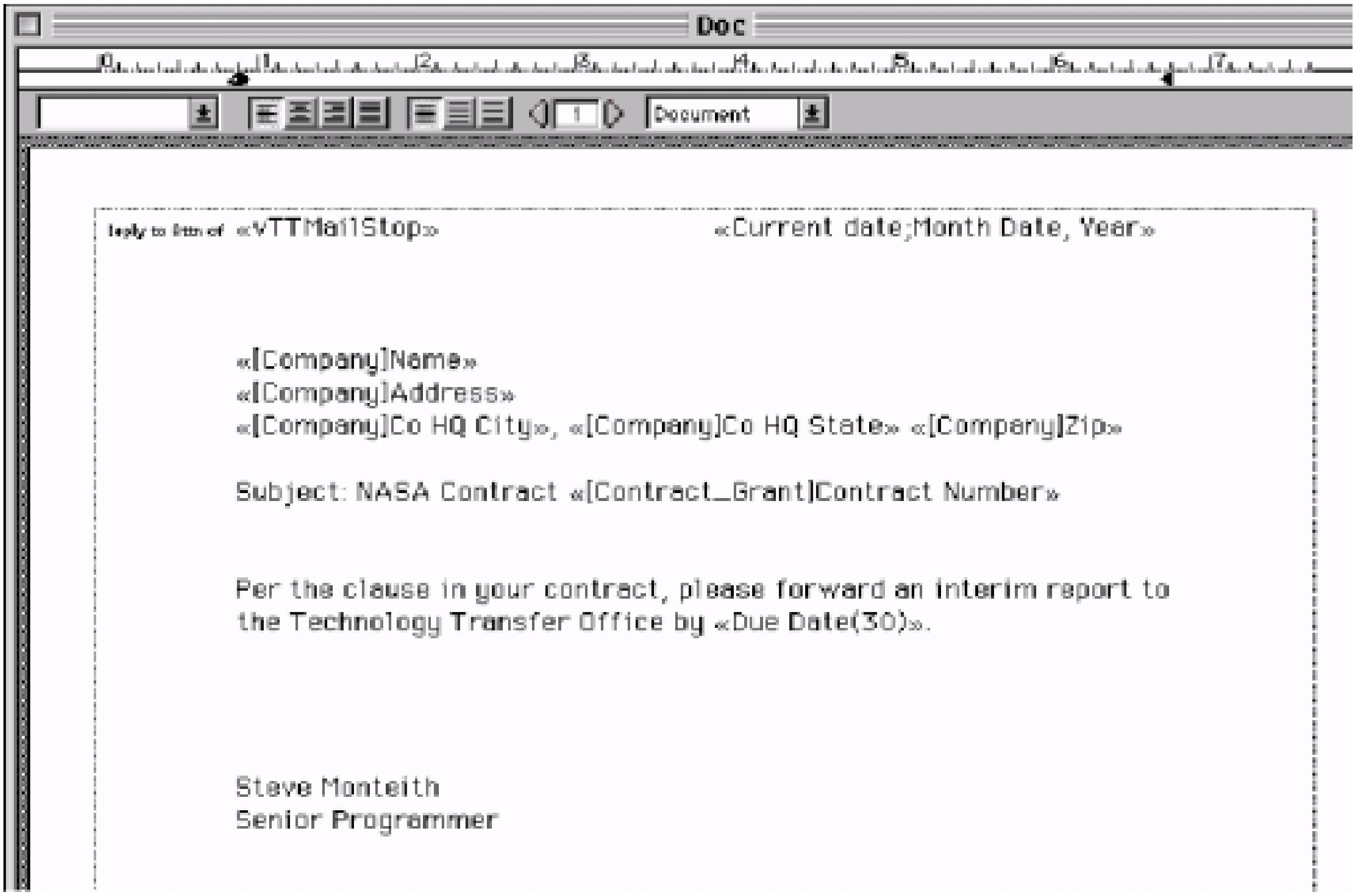
7. Type "vTTMailStop" and click the *OK* button.

8. Replace "...Technology Transfer Office." replace with "...Technology Transfer Office by ." in the
main paragraph.

9. Click to the left of the period of the main paragrapgh.

10. From the **Database** menu, select **Database** => **Insert 4D Expression...**

11. Type "Due Date(30)" and click the *OK* button.



12. From the **Database** menu, select **Database** => **Show Values**...

13. Click the *Accept* button.

QRList

Overview
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Overview

QRList is a generic function (NASA TechTracS Expression) which searches a specified table and returns an accumulated delimited text block of a specified field. QRList is used when information from a related Table is needed in a Quick Report (See Quick Reports). For instance, if the user would like a list of keywords associated with a selection of Technology records.

Parameters:

1 = pointer to table to search
2 = pointer to field to search
3 = pointer to search value
4 = pointer to field to return
5 = True: Perform search, False: Use existing selection
6 = delimiter to use
7 = string format (eg: "$###,##0.00")

Returns: text

Getting Started

To access the QRList formula, create a selection of records in a table ([Technology] for example). Select "Quick Report" from the "Report" menu.

A call to QRList may be placed in a formula of an inserted column on a Quick Report. When the column is inserted, the Formula Editor Screen is displayed. Enter the QRList formula with the appropriate options. The function will generate a block of text from records in a table.

For example, this formula:

```
QRlist(->[KeyTechnology]; ->[KeyTechnology]Technology ID; ->[Technology]ID;
        ->[KeyTechnology]Word; True; ", " ;"")
```

...when placed in a column of a Quick Report on the [Technology] table will generate a paragraph of text consisting of keywords (separated by commas) from [KeyTechnology] records whose [Technology] ID field matches each [Technology] record.

Another example, this formula:

```
QRlist(->[Contract_Grant]; ->[Contract_Grant]Company Code; ->[Company]Company Code;
        ->[Contract_Grant]Contract Number; True; Char(13); "")
```

...when placed in a column of a Quick Report on the [Company] table will generate a column of text consisting of Contract numbers (separated by CR's) from [Contract_Grant] records whose [Company] Code field matches each [Company] record.

A further example, this formula:

QRlist(->[Contract_Grant]; ->[Contract_Grant]Company Code; ->[Company]Company Code;
->[Contract_Grant]Total Amount; False; Char(13); "$###,###,###,##0")

...when placed in a column of a Quick Report on the [Company] table, following a column containing the previous formula, will generate a column of text consisting of Contract amount (separated by CR's) from an existing selection of [Contract_Grant] records. The contract amounts will be formatted as a dollar amount without decimal places. Note that the "False" value of parameter 5 stops the function from searching the [Contract_Grant] table again. It uses the existing selection of [Contract_Grant] records (which was established by a formula in a previous column).

The Formula Editor can be used to change field values in a selection of records, execute 4D methods, execute 4D commands. Misuse of this feature can result in destruction of data. Try to limit use of the Formula Editor to QRList functions and simple value comparisons. Technical support is also available to assist with operations in the Formula Editor.

Tutorials

Tutorial #1 - QRList

1. Select Technology table from the Data Control Panel.

2. Click the *OK* button from the Data Control Panel.

3. Select Query Editor from the pop-up query icon on the list window to find Technologies where [Technology]Report As is equal to GE.

4. Select **Utilities=> Quick Report...** menu item.

5. Select **File => Open...** menu item and select TechReport1.4qr.

6. Select **Edit => Insert Column** menu item.

7. Type “QRList(->[KeyTechnology];->[KeyTechnology]Technology ID; ->[Technology]ID;->[KeyTechnology]Word;True;<>CR;"")” in the formula area.

   Note: Do not include the starting and ending quotation marks in the above statement.

8. Click *OK*.

9. Select **Style => Bold** menu item.

10. Uncheck *Automatic Width*. Resize column C1 to be 1-1/2 inches.

11. Type “Keywords” in the header cell for C1.

12. Select **File => Print Preview...** menu item.

13. Click the *Stop* button.

14. Select **File => Save as** item from the **File** menu and type TechReport5 as the filename.

Utilities

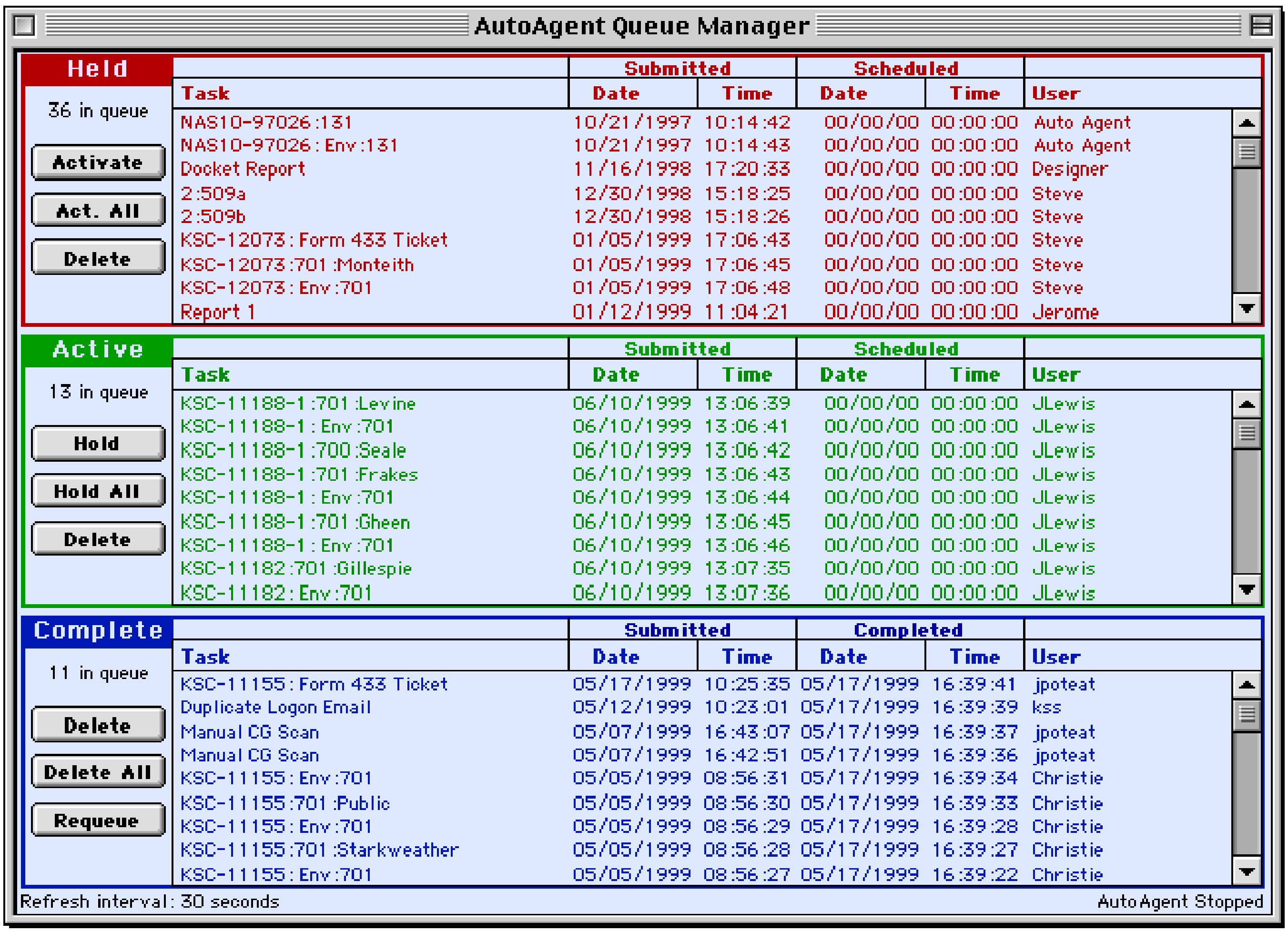
Queue Manager

Overview
Window Title
Window Footer
Window Sections
Personal Agent

Overview

The *Queue Manager Window* displays the status of [Process] records (tasks) targeted for the AutoAgent (or Personal Agent). The [Process] records are used to transfer information about the required tasks to the AutoAgent.

Queue Manager Window


AutoAgent Queue Manager

Held — 36 in queue — Activate / Act. All / Delete

Task	Submitted Date	Submitted Time	Scheduled Date	Scheduled Time	User
NAS10-97026 :131	10/21/1997	10:14:42	00/00/00	00:00:00	Auto Agent
NAS10-97026 : Env :131	10/21/1997	10:14:43	00/00/00	00:00:00	Auto Agent
Docket Report	11/16/1998	17:20:33	00/00/00	00:00:00	Designer
2:509a	12/30/1998	15:18:25	00/00/00	00:00:00	Steve
2:509b	12/30/1998	15:18:26	00/00/00	00:00:00	Steve
KSC-12073 : Form 433 Ticket	01/05/1999	17:06:43	00/00/00	00:00:00	Steve
KSC-12073 :701 :Monteith	01/05/1999	17:06:45	00/00/00	00:00:00	Steve
KSC-12073 : Env :701	01/05/1999	17:06:48	00/00/00	00:00:00	Steve
Report 1	01/12/1999	11:04:21	00/00/00	00:00:00	Jerome

Active — 13 in queue — Hold / Hold All / Delete

Task	Submitted Date	Submitted Time	Scheduled Date	Scheduled Time	User
KSC-11188-1 :701 :Levine	06/10/1999	13:06:39	00/00/00	00:00:00	JLewis
KSC-11188-1 : Env :701	06/10/1999	13:06:41	00/00/00	00:00:00	JLewis
KSC-11188-1 :700 :Seale	06/10/1999	13:06:42	00/00/00	00:00:00	JLewis
KSC-11188-1 :701 :Frakes	06/10/1999	13:06:43	00/00/00	00:00:00	JLewis
KSC-11188-1 : Env :701	06/10/1999	13:06:44	00/00/00	00:00:00	JLewis
KSC-11188-1 :701 :Gheen	06/10/1999	13:06:45	00/00/00	00:00:00	JLewis
KSC-11188-1 : Env :701	06/10/1999	13:06:46	00/00/00	00:00:00	JLewis
KSC-11182 :701 :Gillespie	06/10/1999	13:07:35	00/00/00	00:00:00	JLewis
KSC-11182 : Env :701	06/10/1999	13:07:36	00/00/00	00:00:00	JLewis

Complete — 11 in queue — Delete / Delete All / Requeue

Task	Submitted Date	Submitted Time	Completed Date	Completed Time	User
KSC-11155 : Form 433 Ticket	05/17/1999	10:25:35	05/17/1999	16:39:41	jpoteat
Duplicate Logon Email	05/12/1999	10:23:01	05/17/1999	16:39:39	kss
Manual CG Scan	05/07/1999	16:43:07	05/17/1999	16:39:37	jpoteat
Manual CG Scan	05/07/1999	16:42:51	05/17/1999	16:39:36	jpoteat
KSC-11155 : Env :701	05/05/1999	08:56:31	05/17/1999	16:39:34	Christie
KSC-11155 :701 :Public	05/05/1999	08:56:30	05/17/1999	16:39:33	Christie
KSC-11155 : Env :701	05/05/1999	08:56:29	05/17/1999	16:39:28	Christie
KSC-11155 :701 :Starkweather	05/05/1999	08:56:28	05/17/1999	16:39:27	Christie
KSC-11155 : Env :701	05/05/1999	08:56:27	05/17/1999	16:39:22	Christie

Refresh interval: 30 seconds — AutoAgent Stopped

The [Process]Status field indicates the status of the task which can be active (A), complete (C) or held (H). The Queue Manager window implements a queue metaphor in displaying the [Process] records.

Window Title

The title of the window indicates which set of queues is being displayed. The various titles are: AutoAgent Queue Manager, Personal Agent Queue Manager, and AutoAgent Queue Manager (WAN). The latter variation is used on the Agencywide system to show those [Process] records that are used to indicate Wide Area Network jobs - tasks that will be performed by the AutoAgent at one or more Field Centers the next time they connect.

Window Footer

The bottom of the Queue Manager window contains three items:

Refresh Interval	Shows the number of seconds between updates of the window. This value can be increased or decreased by selecting **File** => **Change Refresh Interval...** from the **File** menu to suit your needs.
Print Preview	Only visible when viewing the Personal Agent Queue Manager, this checkbox, when checked on, forces all printed jobs to display to the screen rather than be sent directly to the printer.
AutoAgent Status	Displays one of two values: "AutoAgent Stopped" or "AutoAgent Running" and indicates the status of the TechTracS AutoAgent.

Window Sections

The Queue Manager window has three distinct sections: Held, Active, and Complete:

Held

Tasks in this section (or queue) will not be executed and will remain indefinitely until deleted or activated by a user. Tasks are listed in the order that they were created. Tasks are placed in the Held queue either when the user clicks the *Hold* or *Hold All* button in the Active queue section, or if the user's *Hold Print Jobs* Preference is set. The user may remove tasks from the Held queue by selecting them and clicking the *Delete* button. The user may move one or more tasks from the Held queue to the Active queue by selecting them and clicking the *Activate* button. Clicking the *Act. All* button will move all tasks from the Held queue to the Active queue.

Active

Tasks in this queue are awaiting execution and will be executed by the AutoAgent (if it is running or as soon as it is started). Tasks are listed in the order that they were created. The user may remove tasks from the Active queue by selecting them and clicking the *Delete* button. The user may move one or more tasks from the Active queue to the Held queue by selecting them and clicking the *Hold* button. Clicking the *Hold All* button will move all tasks from the Active queue to the Held queue.

Complete

Tasks in this queue have been executed and are waiting to be deleted. Tasks are ordered in chronological order showing the oldest item last based on the date and time that the task was completed. In other words, the most recently completed item appears at the top of the queue. The user may move tasks from the Complete queue to the Active queue by selecting them and clicking the *Requeue* button. The user may remove one or more tasks from the Complete queue by selecting them and clicking the *Delete* button. Clicking the *Delete All* button will remove all tasks from the Completed queue.

NOTE: Sometimes when Holding or Deleting items on the Active queue an item will not respond. This is because that item is being processed by the AutoAgent and is locked.

NOTE: The AutoAgent has the ability to delete completed tasks that have been on the Completed queue for longer than a given period. See the *Automatically Purge...* check box in the [Constants] table.

Personal Agent

It is important to understand where processing occurs when using the Personal Agent. The Queue Manager process itself performs all the processing for your personal tasks.

The Queue Manager looks for active personal tasks just before it refreshes the queue display. If it finds any it will perform them before the screen is redisplayed. Since the Queue Manager window is a process that is independent from the normal TechTracS windows it is possible for the user to continue working in TechTracS while the Personal Agent takes care of the user's tasks in the background. However, if any of those tasks require user response they will display a window or dialog as appropriate; to show the print dialog boxes, for example, when printing tasks are being performed.

NOTE: Personal Agent processing is only performed by the Queue Manager when the window is displaying Personal Tasks. Switching the display to view regular AutoAgent or WAN tasks will suspend Personal Agent processing.

TIP: If the Personal Agent preference is selected, the Personal Agent Queue Manager process and its window will automatically be started when you log in to TechTracS. You may leave the window open in the background while you work in other areas of TechTracS.

Reminder Module

Overview

Overview

In an effort to improve the reminder functionality in TechTracs, the Reminder Manager was rewritten and replaced by the Reminder Module. The new Reminder Module allows the display of daily messages over a specified time period, allows messages to be sent from the main server to the site servers and have those messages displayed in the daily message window, and create task that will execute when a specified condition is met or a specified data element has been modified.

Daily Message

Overview

The Daily Message component of the Reminder Module provides the means to communicate information concerning the TechTracS system to users when they are signing into the system. This section discusses how to use the Daily Message component of the Reminder Module and how those messages are viewed.

NASATechTracS Daily Message window

Viewing Daily Messages

Daily Messages are viewed by the user when they are signing into TechTracs. Just before the Data Control Panel is displayed, the Daily Message window will appear showing any messages in a scrollable area. The messages contained in the scrollable area are sorted by their Start Date in ascending order. While the Daily Message dialog is up, the system startup sequence will continue on and bring up the Data Control Panel. The Daily Message window will remain until the user clicks on the *Done* button.

If the user would like to review the Daily Messages again, they can go to the menu bar and select **Report** => **Daily Message**. Like before, the Daily Message window will remain until the user has clicked on the *Done* button.

Daily Messages Listing Window

The [Daily Message] listing window is the standard TechTracS listing window. When in the listing window the following fields are displayed; the ***Owner's Name***, a portion of the ***Message Body***, and the ***Start Date*** of the message. From here the user has the same functions as they would from any other listing window for any table in TechTracS.

Quick Find & Custom Finds

The Quick Find search for the [Daily Message] table is based on a date. When the quick find is executed, the user is prompted to enter a date. After the date has been entered, the Quick Find will search the [Daily Message] table for messages that will be displayed on the date that was entered by the user. After the search has completed, any records that were found will be shown in the listing window.

The Custom Finds that are available from within the [Daily Message] find are; "Find By Owner", "Find By Message Contains" and "Find By Date". Access to these custom finds can be found by going to the *Query* popup and selecting **Find**. When the **Find** dialog appears, the user can use the *pop-up menu* at the top of the dialog to select the find/search that is to be performed.

> NOTE: The "Find By Date" query works differently than the Quick Find. When this find is executed, it will look for those daily messages whose start date is equal to the date that was entered.

Creating A Daily Message

To create a Daily Message, go to the [Daily Message] listing window and click on the *Add* button. After the *Add* button has been clicked, the record window for the [Daily Message] table will appear. This window has the following fields available;

Owner: This field shows the owner/creator of the message. When the record is first created this field will default to the current user.

Start Date: This field shows the date the message will start appearing in the Daily Message window. When the record is first created this field will default to the current date.

End Date: This field shows the last day the message will appear in the Daily Message window. When the record is first created this field will default to the current date.

Message Body: This field shows the text that will be displayed in the Daily Message Window.

All the above fields are enterable and can be changed. The record window also contains a *Text Edit* button that will allow the user to have a bigger area to enter their message text. After the values have been entered in to the appropriate fields, the user can save their message by clicking on the *Accept* button. The message will then be saved and the user would be returned back to the listing window. If the user wishes to cancel the message, they can do so by clicking on the *Cancel* button.

Modifying A Daily Message

To update or modify the contents of a [Daily Message] record, go to the listing window for the [Daily Message] table and find the record that will be modified/updated. Once the record has been found, double-click on the record to open it up in the record window of the [Daily Message] table. Once opened in the record window, the user can make any updates/modifications that are necessary.

Once the updates/modifications are completed, the user can use the *Accept* button to save the changes or they can click on the *Cancel* button to leave the record unchanged. After the record has been saved or canceled, the user will be returned to the [Daily Message] listing window.

Removing A Daily Message

To remove a message record from the [Daily Message] table, go to the listing window for the [Daily Message] table and find the record or records to be removed. Once the record or records have been located, the user can single click on record to select it or the user can hold down the <Shift> key and click on the record to select multiple records on a Windows box or they can hold down the <Apple> key and click on the record to select multiple records on a Macintosh.

After the record or records are selected, go to the menu bar and select **Enter** => **Delete**. A message will then appear prompting the user to confirm the delete operation. If the user clicks on *Cancel* button, the record(s) will not be deleted. If the user clicks on the *OK* button, the record(s) will be deleted from the [Daily Message] table. Once the records are removed /delete from the [Daily Message] table, they cannot be restored.

> NOTE: Access to the Delete menu item is controlled by the system DBA and is restricted to only authorized users.

Sending A Daily Message From The AgencyWide Server

The Daily Message component of the Reminder Module has a special feature that will allow a message to be created on the Agency Wide Server (AWS) and then have that message filtered down to the other servers at each of the field centers.

This is accomplished when a user, who has access rights to the AWS, logs in and goes to the [Daily Message] table and creates a message record. In creating a message on the AWS, the user would follow the same steps as they would when creating a message on their field center server. At the time the field center connects to the AWS, it will execute a WAN job that will bring any messages created on the AWS down to the field center's server. So, when a user logs in to TechTracS the message that was created on the AWS will now appear in the center's Daily Message Window.

This feature will provides a way to inform TechTracS users about any special events that might affect them. As stated above, only those users who have access rights to the AWS and have access to the [Daily Message] table can create messages to be sent down to the field centers.

Reminder Task

Overview

The Reminder Task component of the Reminder Module stores the tasks that are to be performed when a condition is met or when a specified field has been modified.

Reminder Task Listing Window

The [Reminder Task] listing window is the standard TechTracS listing window. When in the listing window the following fields are displayed; the ***Task Name***, ***Owner's Name*** and the ***Task Table Number***. From here the user has the same functions as they would from any other listing window for any table in TechTracS.

Quick Find & Custom Finds

The Quick Find search for the [Reminder Task] table is based on task name. When the quick find is executed the user is prompted to enter a name. After the name has been entered, the Quick Find will then search the [Reminder Task] table for tasks whose name is equal to the one entered or for tasks whose name begins with the text that was entered at the name prompt. After the search has completed, any records that were found will be shown in the listing window.

The Custom Finds that are available from within the [Reminder Task] find are; "Find By Task Name", "Find By Owner" and "Find By Table". Access to these custom finds can be found by going to the *Query* popup and selecting **Find**. When the **Find** dialog appears, the user can use the *List Box* at the top of the dialog to select the find/search that is to be performed.

> NOTE: The "Find By Table" will only allow the user to look for tasks in tables to which they have access. It will not allow the user to look for task associated with tables to which they do not have access.

Creating A Reminder Task

To create a Reminder Task, go to the [Reminder Task] listing window and click on the *Add* button. After the *Add* button has been clicked, the record window for the [Reminder Task] table will appear. This window has the following fields available;

Task Name: This field shows the name of the task.

Owner: This field shows the owner/creator of the reminder task. When the record is first created this field will default to the current user.

Table: This field shows the table selected from the pull down as the task table.

Task Items Area: This area shows the items to be performed once the associated condition has been met.

The ***Task Name*** field is enterable and can be changed. The ***Owner*** field is non-enterable and cannot be changed. The ***Table*** field value is obtained by selecting a table from the *Table button*. The tables in the *scrollable list* are limited to showing those tables that the user has access too. Once a table has been selected from the *scrollable list*, it will be placed into the ***Table*** field. The Task Items Area contains a sub form showing the task items that are related to the reminder task records. The Task Items Area will be discussed further later in this section.

Once the user has entered their values for the task fields and have created their task items, the user can save their task by clicking on the *Accept* button. The task and its associated task items will be saved and the user would be returned to the listing window. If the user wishes to cancel the task, they can do so by clicking on the *Cancel* button. By canceling the task record, the task item records will also be canceled too.

Reminder Task Items

The [Reminder Task Item] records contain information on each task step to be performed that collectively comprise the task. The types of task item records that can be associated with a task are "Email", "Acton Item" and "Chronology". Task item records are created through an interface on the [Reminder Task] record window. This section will discuss the operation of viewing, creating, editing and removing a reminder task item.

Task Items Area

As stated in the section "Creating A Reminder Task", the Task Items Area is located on the record window of the [Reminder Task] table. This area contains four buttons that will allow the user to create, edit or remove items from the task and a sub form showing the task items that are associated with the reminder task. The fields displayed in the sub form listing are;

Task Item Type: This field shows the type of the task to be performed. The three types of task that can be performed are "Email", "Action Item" and "Chronology".

Information: This field shows the subject of the task item except in the case of a Chronology item.

Creating A Task Item

From within the Task Items Area on the [Reminder Task] record window, click on the *Add* button. If the *Add* button is disabled, then check to see if a Task Table has been selected. The button will remain disabled until a Task Table is selected.

After the user has clicked on the *Add* button, the record window will change to the Simple Input form for the [Reminder Task Item]. When the task item record is first created, it will default to creating an Email Message task. If the user does not wish to create an Email Message task, the user can create one of the other two (Action Item or Chronology).

The Email Message task is automatically selected when a new task item is generated. When creating this task item, there are two areas that the user must fill out, the Email Recipient and the Email Message areas. From within the Email Recipient area the user can select one of four destinations to which their email message can be sent, those choices are;

Me: When this option is selected, the mail will be sent to the current user. When the record is first created, this choice will be selected as the default. When selected the user's email address should appear in parenthesis. If the address is not there, then the user will need to check their People record to confirm that an email address has been entered for them and that the correct People record was selected in their preferences settings.

This Address: When this option is selected, the user must enter the email address of the person that will be receiving the email.

People with Keyword: When this option is selected, the user will enter a keyword. After the keyword has been entered, a check will be made to see if there is anyone associated with the keyword that was entered. If no one is associated with the keyword, then the user will be prompted that no one is associated with the keyword and that they should enter another keyword. If there are people associated with the keyword, the user will be permitted to continue on without receiving any further prompts or warning messages.

Point of Contact: When this option is selected, the icon for the pull-down will appear. The user can then click on the icon and view a list of fields from the Reminder Task Table that are points of contact. When the user selects a point of contact, that contact will be placed in the field.

(NOTE: For fields being used from the [Action_Items] table as Email recipients, those people who are listed in the pop-up list on the "From", "Assigned By" and "To" fields must have their "Action Name" selected in their [People] record. If their name is not selected, they will not receive the Email.)

From within the Email Message area, the user can enter the ***Subject*** and ***Body***. Both the ***Subject*** and ***Body*** have buttons. These *buttons* will bring up a *scrollable area* that contains the fields from the table that was selected as the ***Reminder Task Table***, a link to take the user to other tables related to the selected ***Reminder Task Table*** and links to special functions. Currently there are five special functions that can be inserted into to the ***Subject*** and ***Body*** fields. Those functions are **remCurrentDate** (returns the current date), **remCurrentTime** (returns the current time), **remInsertTechInventors** (returns the Inventors Name(s) and their respective Company Name for the resulting [Technology] table. (NOTE: This function only works if the [Technology] table is selected as the Task Table.)), **remInsertPOCName** (returns the selected Point Of Contact's Name), **remLicenseeNameAddress** (returns the Licensee's Name and Address if the [License] table is selected as the "Task Table".) and **remLastModifiedBy** (returns the user name of the person who last modified the current record in the selection of records that are in the table that is selected as the "Task Table"). While in the *scrollable area*, if the user selects the link that will take them to the one table of the table that was selected as the ***Reminder Task Table***, the *scrollable area* will go away and the user must click on the button again to bring the *scrollable area* back up to see the fields of the one table. If the user is in the one table and wants to go back to the original table, then they would click on the "<Back>" item that can be found at the top of the *scrollable area*. When "<Back>" is selected, the *scrollable area* will go away and the next time the user clicks on the *button*, the scrollable area listing will change to show the fields from the previous table. When fieldnames or functions are inserted into these fields, they are inserted as tags. If the task condition has been met, then at the time the task item

From within the task items area on the [Reminder Task] record window, scroll the sub form until the task item that is to be edited is visible. Once the item is visible, click on it once to select the item. After the item is selected, the *Edit*, *Delete* and *Duplicate* buttons will become active. Click on the *Edit* button and the selected record will then be opened in the simple input form. Once the window is up, the user is free to edit and modify the record.

After the user has finished editing the task item, the user can save the changes made to the task item record by clicking on the *Accept* button. After the *Accept* button is clicked, the record will be saved and the user will be returned to the [Reminder Task] record window. Once back at the record window, the sub form inside the task items area will be updated to reflect any changes made to the task item record. If the user clicks on the *Cancel* button, then the changes made to the task item record will not be saved and the user will be returned to the [Reminder Task] record window. Since the record was canceled, the sub form inside the task items area will remain unchanged.

Duplicating A Reminder Task Item

There are times when the user would need to create the same task item but only need to change a few things. The user can have this functionality by using the *Duplicate* button. To duplicate a task item record, the user must locate the task item in the sub-form. Once the record is found, then click on the record once to select it. Once the record is selected, the *Duplicate* button will then become active. After the button is clicked, the system will then proceed to duplicate the record. Once the system has finished with the duplication, the sub-form will be updated and the new duplicate record will then appear at the end of the list. Another way to notice the new duplicate record is to look for "(COPY)" in the Information/Subject field. At this point the user is free to edit the duplicated task record.

Deleting A Reminder Task Item

From within the Task Items Area on the [Reminder Task] record window, scroll the sub form until the task item that is to be deleted is visible. Once the item is visible, click on it once to select the item. After the item is selected, the *Edit*, *Delete* and *Duplicate* buttons will become active. Click on the *Delete* button and a dialog will appear asking the user to confirm the delete. If the user clicks on the *Don't Delete* button, then the dialog will go away and the selected record will not be changed. If the user clicks on the *Delete* button, the selected record will be deleted and the sub form will be updated to reflect that the record was deleted.

Modifying A Reminder Task

To update or modify a [Reminder Task] record, go to the listing window for the [Reminder Task] table and find the record that will be modified/updated. Once the record has been found, double-click on the record to open it up in the record window of the [Reminder Task] table. Once opened in the record window, the user can make any updates/modifications that are necessary.

Once the updates/modifications are completed, the user can use the *Accept* button to save the changes or they can click on the *Cancel* button to leave the record unchanged. After the record has been saved or canceled, the user will be returned back to the [Reminder Task] listing window.

Removing A Reminder Task

To remove a task record from the [Reminder Task] table, go to the listing window for the [Reminder Task] table and find the record or records that will be removed. Once the record or records have been located, the user can single click on record to select it or the user can hold down the <Shift> key and click on the record to select multiple records on a Windows box or they can hold down the <Apple> key and click on the record to select multiple records on a Macintosh.

After the record or records are selected, go to the menu bar and select **Enter** => **Delete**. A message will then appear prompting the user to confirm the delete operation. If the user clicks on *Cancel* button, the record(s) will not be deleted. If the user clicks on the *OK* button, the record(s) will be deleted from the [Reminder Task] table and its associated [Reminder Task Items]. Once the records are deleted from the [Reminder Task] and [Reminder Task Items] table, they cannot be restored.

NOTE: Access to the Delete menu item is controlled by the system DBA and is restricted to only authorized users.

Batch Update Routines

The [Reminder Task] table currently has one Batch Update Routine. This routine is the "Duplicate..." routine. When the routine is run, it will take the selected [Reminder Task] record and duplicate it along with its related task item records. The steps in running this job are as follows:

- From the [Reminder Task] table list window, select the task to be duplicated.
- After the record has been selected, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Duplicate..." to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the [Reminder Task] list window.
- If the user clicked *OK*, the system will proceed with the duplication. After the system has duplicated the record and its associated task, the list window for the [Reminder Task] table will be updated to show only the new duplicated record.

Reminder Condition

Overview

The Reminder Condition component of the Reminder Module stores the conditions that determine when a specified task is to be run.

Reminder Condition Listing Window

The [Reminder Condition] listing window is the standard TechTracS listing window. When in the listing window the following fields are displayed; the ***Condition Name***, ***Owner's Name***, ***Condition Type*** and a indicator to show if the condition is disabled. From here the user has the same functions as they would from any other listing window for any table in TechTracS.

Quick Find & Custom Finds

The Quick Find search for the [Reminder Condition] table is based on condition name. When the quick find is executed the user is prompted to enter a name. After the name has been entered, the Quick Find will then search the [Reminder Condition] table for records whose name is equal to the one entered or for conditions whose name begins with the text that was entered at the name prompt. After the search has completed, any records that were found will be shown in the listing window.

The Custom Finds that are available from within the Reminder Condition find are; "Find By Condition Name", "Find By Owner", "Find By Condition Table" and "Find by Enabled/Disabled". Access to these custom finds can be found by going to the *Query* popup and selecting **Find**. When the **Find** dialog appears, the user can use the *List Box* at the top of the dialog to select the find/search that is to be performed.

> NOTE: The "Find By Condition Table" will only allow the user to look for tasks in tables to which they have access. It will not allow the user to look for task associated to tables to which they do not have access.

Auto Agent Scan and Triggered By User Reminder Conditions

In the TechTracS reminder module, there are currently two types of reminder conditions that can be created. The first is the "Auto Agent Scan" condition. The "Auto Agent Scan" condition is applied on a regular basis to all records in a selected table. The second is the "Triggered By User" condition. The "Triggered By User" condition is applied only when a selected field in the selected table is changed. The condition type can be selected in the Reminder Type *pull-down menu* located on the [Reminder Condition] record window. When a reminder condition record is first created, it is automatically set to "Auto Agent Scan" condition as a default.

Creating A Reminder Condition

To create a reminder condition, go to the [Reminder Condition] listing window and click on the *Add* button. After the *Add* button has been clicked, the record window for the [Reminder Condition] table will appear. This window has the following fields available;

Condition Name: This field shows the name of the condition.

Disabled: This field indicates if the condition is disabled. If the box is checked, then the condition record has been marked as being disabled.

For the Disable check box to be unchecked for a "Auto Agent Scan" condition, the user must select a Condition Table, a Reminder Task and have created one or more condition items.

For the Disable check box to be uncheked for a "Triggered By User" condition, the user must select a Condition Table, a Trigger Field and a Reminder Task.

Owner: This field shows the owner/creator of the reminder condition. When the record is first created this field will default to the current user.

Reminder Type: This field shows the type of condition. When the record is first created, this field will default to a "Auto Agent Scan" condition.

Table: This field shows the table selected from the pull down as the condition table.

Field: This field shows the field that is to be check when the Reminder Type has been set to "Triggered By User". This field will only be visible when the Reminder Type is "Triggered By User". If the Reminder type is "Auto Agent Scan" then this field will not be visible.

Null Set Condition: This field indicates that a null set is okay for a condition

Days Effective: This field shows the number of days that are to pass before the condition is checked again for any specific record. The [Reminder Log] table is used to determine if a specific record has already met the condition. If so, the number of Days Effective must pass before that record satisfies the condition. A value of "0" means that the record will never meet the condition a second time.

Task: This field shows the name of the reminder task to which the condition is related to. The task is selected by clicking on the *Choose...* button.

Reminder Condition Items Area: This area shows the items that collectively form the condition query.

The ***Condition Name***, ***Disabled, Owner, Null Set Condition*** and ***Days Effective*** fields are enterable and can be changed. The ***Reminder Type*** field value is obtained by selecting an item from the *pull-down menu* icon. The ***Table*** field value is obtained by clicking on the *Table* button and selecting a table from the *scrollable list*. The tables in the *scrollable list* are limited to showing those tables to which the user has access. Once a table has been selected from the *scrollable list*, it will be placed into the ***Table*** field. If the user has selected the condition to be a "Triggered By User" condition, then the ***Field*** value will appear below the ***Table*** value. Selecting a field will be done in the same manner as selecting a table. The user can click on the *Field* button and select the appropriate field from the *scrollable list*. Once the field is selected, it will be placed in the ***Field*** variable.

To select a task to associate with the condition, the user must click on the *Choose...* button located to the right of the task variable. When the user clicks on this button, the system will check to see if the user has selected a condition table. If no condition table has been selected, then the user will receive a message informing them that they must select a condition table before they can select a task. Once a condition table has been selected, the system will search the [Reminder Task] table for task tables that are equal to the condition table selected in the record. After the search is perform, the selector dialog will then appear. If any [Reminder Task] records were found whose task table is the same as the condition table, then those [Reminder Task] records will appear in the scrollable area. If the task the user wants to relate the condition record to appear in the list, then the user can click once on the task record to select it and then click on the *Accept* button to choose the record as the task to be related to the condition record. If the user double-clicks on the task record, then the system will close the selector dialog and the record that the user double-clicked on will be selected. If the [Reminder Task] record that the user was looking for does not appear on the list, then the user can go to the entry area located above the scrollable area and enter the first few characters of the task name. Once the entry has been completed, press the <Tab> or <Return> key to start the search. When searching, the system will look for task names that match or begin with any of the characters entered and whose task table is the same as the condition table. If no

[Reminder Task] records are found, then in the lower right hand corner of the selector dialog a message will appear in red letters informing them that no [Reminder Task] records found whose name matched or contained the characters that were entered in the entry area. If any [Reminder Task] records are found, then those records will be listed in the scrollable area. The user would then follow the steps above in selecting a task to relate to the condition record. If the user does not want to relate a task to a condition record or does not want to change the selection that was already made before they went into the selector dialog, then they would click on the *Cancel* button. This would return the user back to the [Reminder Condition] record window without making any change to the task field.

The Reminder Condition Items Area contains a sub form showing the condition items that are related to the reminder condition record. The Reminder Condition Items Area will be discussed further later in this section.

Once the user has entered their values for the condition fields and have created their condition items, the user can save their condition by clicking on the *Accept* button. The condition and its associated condition items will be saved and the user would be returned to the listing window. If the user wishes to cancel the condition, they can do so by clicking on the *Cancel* button. By canceling the condition record, the condition item records will be canceled too.

Reminder Condition Items

[Reminder Condition Item] records can be thought of as lines in a query statement for a specific condition. When a condition record comes up for evaluation, the item records are put together to form a query to see if a condition has been met. If the condition has been met, then the related task is executed.

[Reminder Condition Item] records are created through an interface on the [Reminder Condition] record window. This section will discuss the operation of viewing, creating, editing and removing [Reminder Condition Item] records.

Reminder Condition Items Area

As stated in the section "Creating A Reminder Condition", the Reminder Condition Items Area is located on the record window of the [Reminder Condition] table. This area contains three buttons that will allow the user to create, edit or remove items from the condition and a sub form showing the condition items that are associated with the reminder condition. The fields displayed in the sub form listing are;

and/or: This field shows the "AND" or "OR" conjunction used to connect the condition items. All condition items except for the first should have an "AND" or "OR" showing. The first would not since it would be the first statement of the query.

Fieldname: This field shows the fieldname that will be compared to the value.

Operation: This field shows the comparison operation that will be used to compare the value in the ***Fieldname*** to the value in the ***Value*** field.

Value: This field shows the value or function that will be compared to the value contained in the field that is shown in the ***Fieldname***.

Creating A Condition Item

Before the user can create a condition item, the following fields must contain a value or the *Add* button will remain disabled. For a "Auto Agent Scan" condition type, the user must have selected a condition table. For a "Triggered By User" condition type, the user must have selected a condition table and a trigger field. Once the required fields for the condition type being created contain a value, then the *Add* button in the Reminder Condition Items area will become enabled.

From within the Reminder Condition Items Area on the [Reminder Condition] record window, click on the *Add* button. After the user has clicked on the button, the record window will change to the Simple Input form for the [Reminder Condition Item] table. When the condition item record is first created, it will automatically set the link to the appropriate record in the [Reminder Condition] table.

When the form comes up the following fields will be displayed;

Reminder Condition Name: This non-enterable field shows the name of the [Reminder Condition] record to which the [Reminder Condition Item] is related.

Reminder Condition Table: This non-enterable field shows the Condition Table name that was set back on the [Reminder Condition] record window.

And/Or Prev. Condition: This field shows the conjunction that relates the condition item record with the other condition item records.

Field: This non-enterable field shows the field name that will be compared to value that is in the ***Value*** field.

Operation: This field shows the comparison operation that will be used to compare the value in the ***Fieldname*** to the value in the ***Value*** field.

Value: This field is where the value or function will be entered that will be used to compared to the value contained the in field that was selected.

If the record being added is the first condition item of a reminder condition, then the system will not allow a value to be entered in to the ***And/Or Prev. Condition*** field. If the record being added is not the first, then by moving the mouse pointer in to the ***And/Or Prev. Condition*** field and clicking on it will cause the "AND" conjunction to appear. By clicking on the field a second time, the "OR" conjunction would then appear. At this point when clicking on this field, would cause the field to toggle back and forth between the "AND" and "OR" conjunctions.

When selecting a field, click on the *Fields* button. When the button is clicked, a *scrollable list* will come up and contain a list of fields that are from the table that was selected as the ***Condition Table***. If the selected ***Condition Table*** is a many table to a one table, then the link to that one table will appear at the bottom of the list. If a field is selected from the selected ***Condition Table***, then the table name will appear in the area on the right side of the field prompt and the field name will appear in the area below the table name display. If the link is taken to the one table, then the Field prompt will change to show the table name of the table selected followed by field (Ex; [Table Name] Field). When the *scrollable list* is brought back up, the fields from the one table will be shown and any links from the one table will be listed at the bottom of the list. To go back to the previous table, at the top of the list is an item called "<Back>". When this item is selected, it will change the *scrollable list* so that the next time the *button* is clicked, the *scrollable list* will show the fields from that table.

Once a field has been selected, the ***Operation*** and ***Value*** fields will become active. Selecting an entry for the ***Operation*** field is done by using the *pull-down menu* icon located below the ***Operation*** prompt. The content of the Operation pull-down menu is dependent on the type of field that was chosen. If an "Alpha" or "Text" field were selected then choices in the list would be "is equal to", "is not equal to" and "contains". If any other field type besides "Alpha" or "Text" was selected then the choices in the list would be "is equal to", "is not equal to", "is greater than", "is greater than or equal to", "is less than" and "is less than or equal to". Once a field is selected, the ***Operation*** field will default to "is equal to" since that is valid for all types of field. The default can be changed by using the *pull-down menu*.

The Value field is also dependent on the field type that was selected in ***Field***. Depending on the field type, the ***Value*** field will adjust to handle the entry of the value. In the special case where the type of the Field selected is a "Date" field, a ***Calculated*** *check box* will appear. If the box is checked, a new area will appear below the value field on the Simple Input form. If the ***Calculated*** *check box* is checked, then user will not be able to directly enter a value in the Value field. If the box is not checked, then an entry can be made directly into the field.

The Value Calculator area appears when the ***Calculated*** *check box* is checked. This area allows the user to build a function to perform a calculation when the item record is evaluated.

NOTE: Currently the Value Calculator only works with Date Fields.

When this area appears, the user will see the following fields;

Function: This field shows the function that was selected from the function *pull-down menu*.

Date: This field is where the user enters the date to be evaluated in the function selected.

Current Date: The current date check box will place the function **Current Date** as a parameter in the function that was selected above and will make the date field non-enterable.

Value: The value field contains the number to be applied to the date in the function that was selected.

When the Value Calculator area comes up, as a default the function that is built is "NumberOfDaysAfter(00/00/00;0)". Currently the functions that the user will be able to select from the function list are **NumberOfDaysAfter**, **NumberOfDaysBefore**, **NumberOfMonthsAfter**, **NumberOfMonthsBefore**, **NumberOfYearsAfter** and **NumberOfYearsBefore**. When a function is selected, it will be displayed in the ***Function*** field and the ***Value*** field outside of the Value Calculator will be updated to show the function selected. On the ***Date*** field inside located inside the Value Calculator, the user can enter a specific date to have the function use at evaluation time. After the date has been enter, the ***Value*** field outside of the calculator area will be updated to show the date that was entered. If the ***Current Date*** *check box* has been checked, then the current date will be placed in the ***Date*** field and in the ***Value*** field outside of the calculator area the function **Current Date** will be placed as a parameter in the function instead of the actual current date. By placing the **Current Date** function as a parameter inside the function, the current date at the time the function is evaluated will be used. In the ***Value*** field, the user would simply enter the number to be applied to the date. After a value has been entered, the ***Value*** field outside of the calculator area will be updated to reflect the change.

An example to so how the calculated area will work;

> To have the ***Value*** field contain a date that is 30 days past the current date then the function selected would need to be "NumberOfDaysAfter", the ***Current Date*** *check box* would be checked and the ***Value*** field would be30. The result in the ***Value*** field outside of the calculator area would be "NumberOfDaysAfter(Current Date;30)".

After the user has finished filling in the fields for the condition item that they are creating, the user can save the [Reminder Condition Item] record by clicking on the *Accept* button. After the *Accept* button is clicked, the record will be saved and the user will be returned to the [Reminder Condition] record window. Once back at the record window, the included form inside the Reminder Condition Items area will be updated to reflect the new Condition Item record that was added. If the user clicks on the *Cancel* button, then the [Reminder Condition Item] record will not be saved and the user will be returned to the [Reminder Condition] record window. Since the record was canceled, the included form inside the Reminder Condition Items area should remain unchanged.

<u>Editing a Condition Item</u>
From within the Reminder Condition Items area on the [Reminder Condition] record window, scroll the sub-form until the condition item that is to be edited is visible. Once the item is visible, click on it once to select the item. After the item is selected, the *Edit* and *Delete* buttons will become active. Click on the *Edit* button and the selected record will then be opened in the simple input form. Once the window is up, the user is free to edit and modify the record.

After the user has finished editing the condition item, the user can save the changes made to the condition item record by clicking on the *Accept* button. After the *Accept* button is clicked, the record will be saved and the user will be returned to the [Reminder Condition] record window. Once back at the record window, the included form inside the Reminder Condition Items area will be updated to reflect any changes made to condition item record. If the user clicks on the *Cancel* button, then the changes made to the condition item record will not be saved and the user will be returned to the [Reminder Condition] record window. Since the record was canceled, the sub form inside the Reminder Condition Items area will remain unchanged.

Deleting A Reminder Condition Item

From within the Reminder Condition Items area on the [Reminder Condition] record window, scroll the sub form until the condition item that is to be deleted is visible. Once the item is visible, click on it once to select the item. After the item is selected, the *Edit* and *Delete* buttons will become active. Click on the *Delete* button and a dialog will appear asking the user to confirm the delete. If the user clicks on the *Don't Delete* button, then the dialog will go away and the selected record will not be changed. If the user clicks on the *Delete* button, the selected record will be deleted and the sub form will be updated to reflect that the record was deleted.

Modifying A Reminder Condition

To update or modify a [Reminder Condition] record, go to the Listing Window for the [Reminder Condition] table and find the record that will be modified/updated. Once the record has been found, double-click on the record to open it up in the Record Window of the [Reminder Condition] table. Once opened in the record window, the user can make any updates/modifications that are necessary.

Once the updates/modifications are completed, the user can use the *Accept* button to save the changes or they can click on the *Cancel* button to leave the record unchanged. After the record has been saved or canceled, the user will be returned back to the [Reminder Condition] listing window.

Removing A Reminder Condition

To remove a task record from the [Reminder Condition] table, go to the listing window for the [Reminder Condition] table and find the record or records that will be removed. Once the record or records have been located, the user can single click on the record to select it or the user can hold down the <Shift> key and click on the record to select multiple records on a Windows box or they can hold down the <Apple> key and click on the record to select multiple records on a Macintosh.

After the record or records are selected, go to the menu bar and select **Enter** => **Delete**. A message will then appear prompting the user to confirm the delete operation. If the user clicks on "Cancel" button, the record(s) will not be deleted. If the user clicks on the "*OK*" button, the record(s) will be deleted from the [Reminder Condition] table and its associated [Reminder Condition Items]. Once the records are deleted from the [Reminder Condition] and [Reminder Condition Items] table, they cannot be restored.

NOTE: Access to the Delete menu item is controlled by the system DBA and is restricted to only authorized users.

Batch Update Routines

The [Reminder Condition] table currently has one Batch Update Routine. This routine is the "Duplicate..." routine. When the routine is run, it will take the selected [Reminder Condition] record and duplicate it along with its related condition item records. The steps in running this job are as follows:

- From the [Reminder Condition] table list window, select the condition to be duplicated.
- After the record has been selected, go to the **Enter** menu and select **Enter** => **Batch Update Routines**.... A dialog window will appear with the routine choices that are available for this table.
- From this dialog, click once on "Duplicate..." to select it and then click *OK*. If you wish to cancel the operation, then click *Cancel* and you will be returned to the [Reminder Condition] list window.
- If the user clicked *OK*, the system will proceed with the duplication. After the system has duplicated the record and its associated condition item records, the list window for the [Reminder Condition] table will be updated to show only the new duplicated record.

Reminder Log

Overview

The Reminder Log component of the Reminder Module keeps a log of the reminder tasks that have been carried out and the table number and record number to which the task was applied.

Reminder Log Listing Window

The Reminder Log Listing Window is the standard TechTracS listing window. When in the listing window the following fields are displayed; the ***Log Date***, ***Log Time***, ***Reminder Task Name***, ***Table Number*** and the ***Record ID Number***. From here the user has the same functions as they would from any other listing window for any table in TechTracS.

Quick Find & Custom Finds

The Quick Find search for the [Reminder Log] table is based on the log date. When the quick find is executed the user is prompted to enter a date. After the date has been entered, the Quick Find will then search the [Reminder Log] table for tasks that were completed on the date that the user entered. After the search has completed, any records that were found will be shown in the listing window.

The Custom Finds that are available from within the [Reminder Log] find are; "Find By Task Name", "Find By Owner" and "Find By Table". Access to these custom finds can be found by going to the *Query* popup and selecting **Find**. When the **Find** dialog appears, the user can use the *List Box* at the top of the dialog to select the find/search that is to be performed.

> NOTE: The "Find By Table" will only allow the user to look for tasks in tables to which they have access. It will not allow the user to look for task associated to tables to which they do not have access.

Creating A Reminder Log Entry

Entries for the [Reminder Log] table are created automatically by TechTracS when a reminder task has been executed. Even though the *Add* button is on the listing window, it is only there for consistency of the listing windows. If the *Add* button is clicked on, a message will appear stating that entries are added automatically by TechTracS.

Modifying A Reminder Log Entry

Reminder Log Entries cannot be modified, but they can be viewed in a record window by going to the listing window for the [Reminder Log] table and find the entry to be viewed. Once the entry has been found, double-click on the entry to open it up in the record window of the [Reminder Log] Table. Once opened in the Record Window, the user can view the entry in a read-only mode.

Once the viewing is completed, the user can use the *Accept* button or *Cancel* button to returned back to the [Reminder Log] listing Window.

Removing A Reminder Log Entry

To remove a log entry from the [Reminder Log] table, go to the listing window for the [Reminder Log] table and find the record or records that will be removed. Once the record or records have been located, the user can single click on record to select it or the user can hold down the <Shift> key and click on the record to select multiple records on a Windows box or they can hold down the <Apple> key and click on the record to select multiple records on a Macintosh.

After the record or records are selected, go to the menu bar and select **Enter** => **Delete**. A message will then appear prompting the user to confirm the delete operation. If the user clicks on *Cancel* button, the record(s) will not be deleted. If the user clicks on the *OK* button, the record(s) will be deleted from the [Reminder Log] table. Once the records are deleted from the [Reminder Log] table, they cannot be restored.

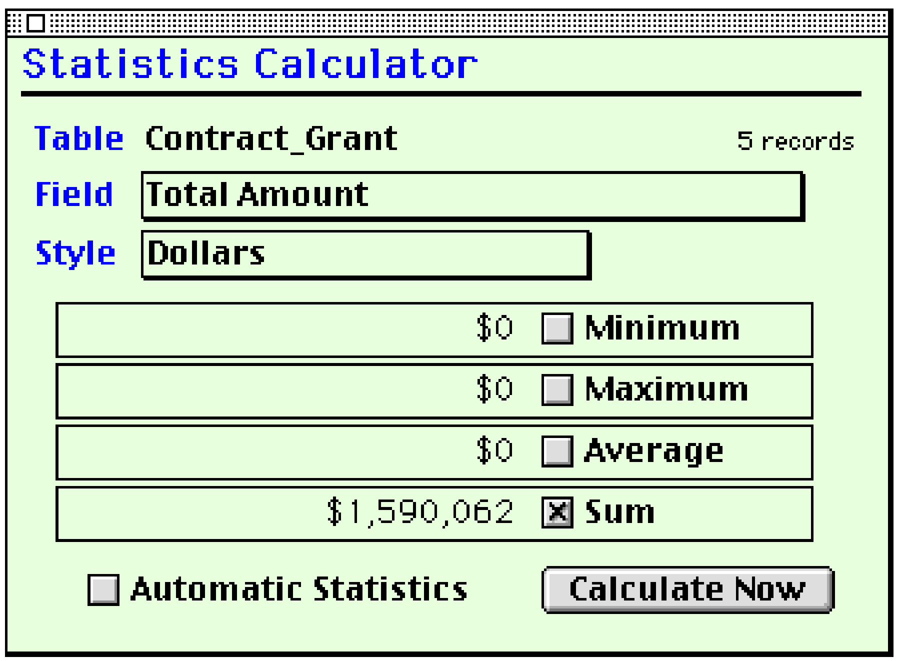
> NOTE: Access to the Delete menu item is controlled by the system DBA and is restricted to only authorized users.

Statistics Calculator

Overview

The *Statistics Calculator* is displayed in a special type of floating window that always appears in front of your other windows in TechTracS. It is most useful when used in conjunction with a List window and is used to obtain numerical information from the current selection of records in the table.

Statistics Calculator Window



It is an active window that responds to your activity in TechTracS. For example, when you switch to a different table in the List window, the Statistics Calculator will reset itself to that table. When you change the current selection in a List window, the Statistics Calculator will update itself to reflect the new selection.

Table
The Statistics Calculator is always focused on the table with which the user is currently working in the List window. The table name is displayed along with the number of records in the current selection that will be used in any calculations.

Field
The Field pop-up menu shows a subset of all the fields from the current table. Only numeric fields are included in the pop-up: integer, long integer and real. Choose a field from the pop-up upon which the Statistics Calculator will perform its calculations.

Style
The Style pop-up menu offers 5 choices:

Style	**Example**
Number	1,234
Number+2 Places	1,234.56
Number+4 Places	1,234.5678
Dollars	$1,234
Dollars & Cents	$1,234.56

It governs the way the results are displayed in the four statistics sections.

Statistics/Calculate Now
The four statistics sections (Minimum, Maximum, Average, and Sum) allow you to select the type of calculation to perform. Any or all of the check-boxes may be selected. Clicking the *Calculate Now* button causes the Statistics Calculator to perform the requested calculations on the indicated selection of records. The results are displayed in the four sections.

Automatic Statistics

The *Automatic Statistics* check-box causes the Statistics Calculator to perform the selected calculations automatically every time the current selection of the table is changed. The following events will cause this to happen:

- After adding records
- After any type of search or find
- After deleting records
- Omitting a subset of records
- Showing all records
- Showing a subset of records
- Inverting a selection of records
- After working with the Set Manager
- Choosing a new set from the Sets pop-up.

This can be a powerful tool for gathering information from different sets of records.

NOTE: When switching to a different table, the Automatic Statistics check-box is reset to off.

Tutorials

Tutorial #1 - Contract/Grant Minimum/Maximum Statistics (5 minutes).
Discover the smallest and largest contract amount from a selection of Contract_Grant records.

1. Switch to the Contract_Grant table and view the List window.

2. From the **Select** menu, choose **Select** => **Show All** or use the keyboard shortcut Ctrl-G (Windows), Cmd-G (Mac).

3. If not already displayed, choose **Utilities**=> **Statistics Calculator** from the **Utilities** menu to display the Statistics Calculator window.

4. Choose **Total Amount** from the **Field** pop-up menu in the Statistics Calculator.

5. Choose **Dollars** from the **Style** pop-up menu in the Statistics Calculator.

6. Check the *Minimum* and *Maximum* check boxes.

7. Click the *Calculate Now* button.

Tutorial #2 - Contract/Grant Total Statistics (10 minutes).
Calculate the total contract amount from different selections of Contract_Grant records.

1. Switch to the Contract_Grant table and view the List window.

2. If not already displayed, choose **Utilities**=> **Statistics Calculator** from the **Utilities** menu to display the Statistics Calculator window.

3. Select **Total Amount** from the **Field** pop-up menu in the Statistics Calculator.

4. Select **Dollars** from the **Style** pop-up menu in the Statistics Calculator.

5. Check the *Sum* check box.

6. Check the *Automatic Statistics* check box.

7. In the Contract_Grant List window select **Find...** from the **Query** pop-up menu at the bottom of the window.

8. In the Find dialog select **State** from the **Find Contract_Grant Records by...** pop-up menu.

9. Enter "CA" in the company state field and click the Find button.

10. Note the new selection of Contract_Grant records and the change to the Sum calculation in the Statistics Calculator window. This is the total contract amount for all contract/grants whose company is located in California.

11. In the Contract_Grant List window click the **Query** button at the bottom of the window.

12. Build a query for "Contract Number is equal to NAG@" and click the *Query in Selection* button.

13. Note the new selection of Contract_Grant records and the change to the Sum calculation in the Statistics Calculator window. This is the total contract amount for all grants whose company is located in California.

TechTracS Help Tools

Overview
Structure Navigator Process
Data Dictionary Process

Overview

TechTracS has several tools available to regular and more advanced users to get information about field definitions and the database structure. While definitions are useful to many users, database structure information is intended for a more experienced audience.

The Data Dictionary allows one to read a field definition while working in TechTracS. The definitions available are provided by the NASA knowledge base.

The Structure Navigator is the a tool that enables the user to navigate through the database structure and understand the table and field relations. It shows the table one is currently in as an object surrounded by other objects (tables). The few fields listed represent the ones critical to the relational bounds.

The combined use of the structure navigator and the data dictionary can explain the fundamentals of the TechTracS architecture as well as the policies and procedures in place.

Structure Navigator Process

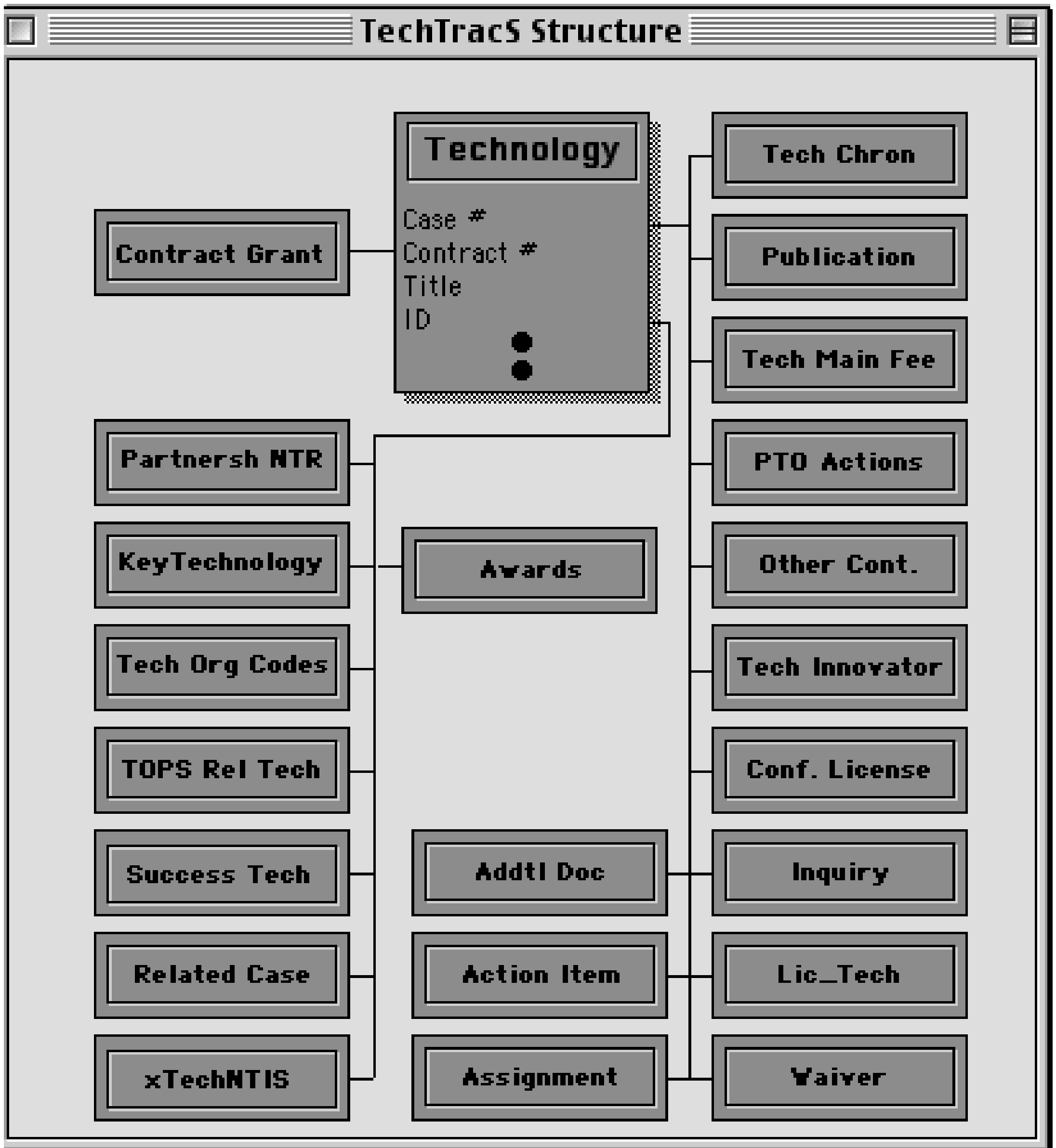
1. Either select a table from the list while being at the splash screen, or navigate to a table list form.

2. Select **Utilities**=> **TechTracS Structure** from the **Utilities** menu.

TechTracS Structure from the Report menu

3. The TechTracS Structure window will open. The central table is the one that the user is in or the one that was selected in the Splash screen. The satellite tables are the related tables. The table object will show the main fields that are used in maintaining the relations.

TechTracS Structure Window



Data Dictionary Process

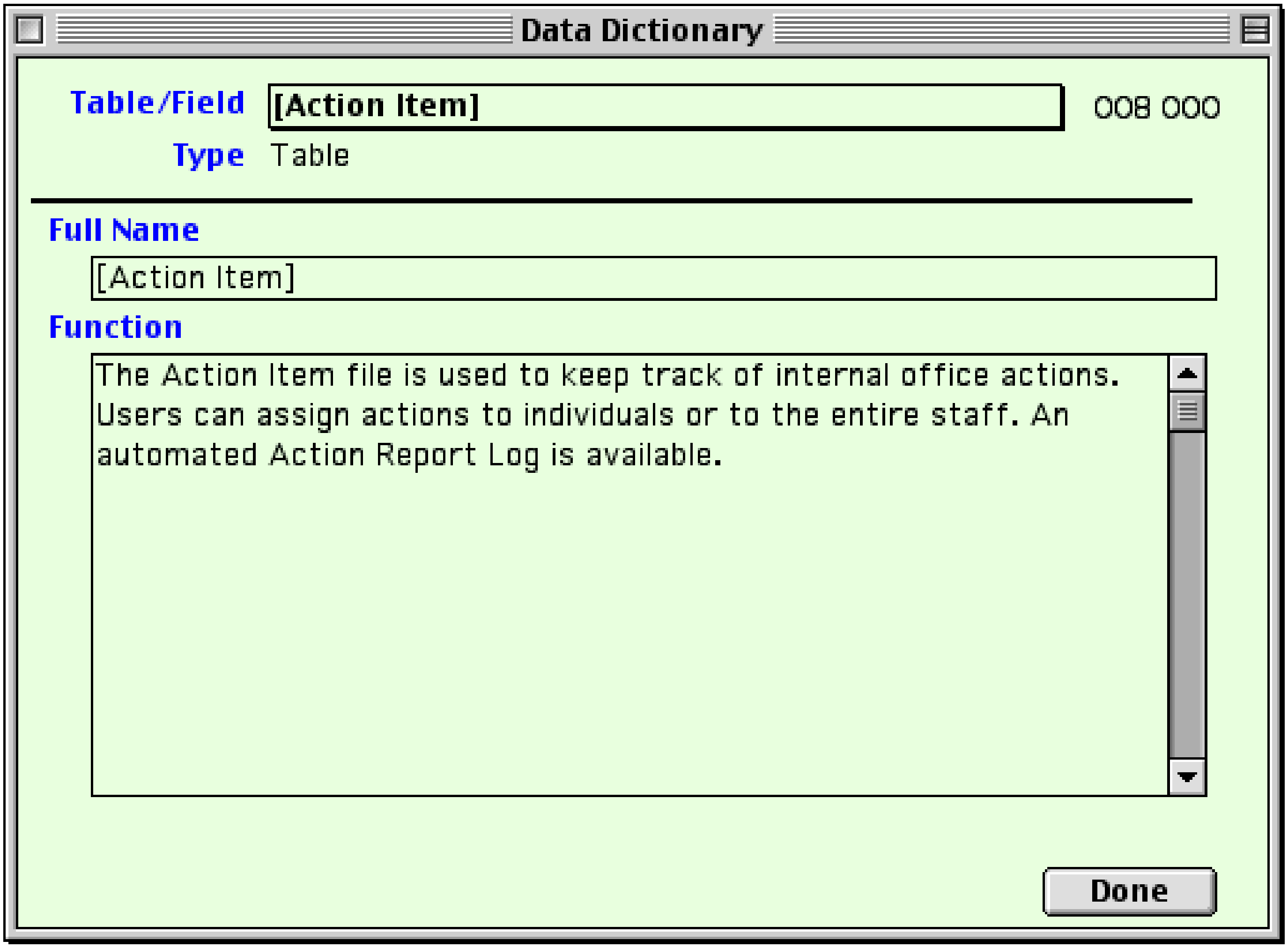
1. Either select a table from the list while being at the splash screen, or navigate to a table list form.

2. Select **Utilities**=> **Data Dictionary** from the **Utilities** menu.

Data Dictionary from the Report menu

3. The Data Dictionary window will open. The default definition that appears in the *Function* section is the table definition. The full name and the type of table or field will be indicated in the *Full Name* and *Type* sections.

Data Dictionary Window



4. To find other field definitions within that table, select the field from the *Table/field* popup menu.

5. To find definition for fields within other tables, switch back to the TechTracS main window and navigate to the table or click on a satellite table in the TechTracS Structure window.

> TIP: To find definitions for fields located in different tables, open the Structure Navigator and navigate from table to table. A double click will open the Data Dictionary for the table clicked. Navigating using the Structure Navigator requires a good knowledge of the TechTracS structure.

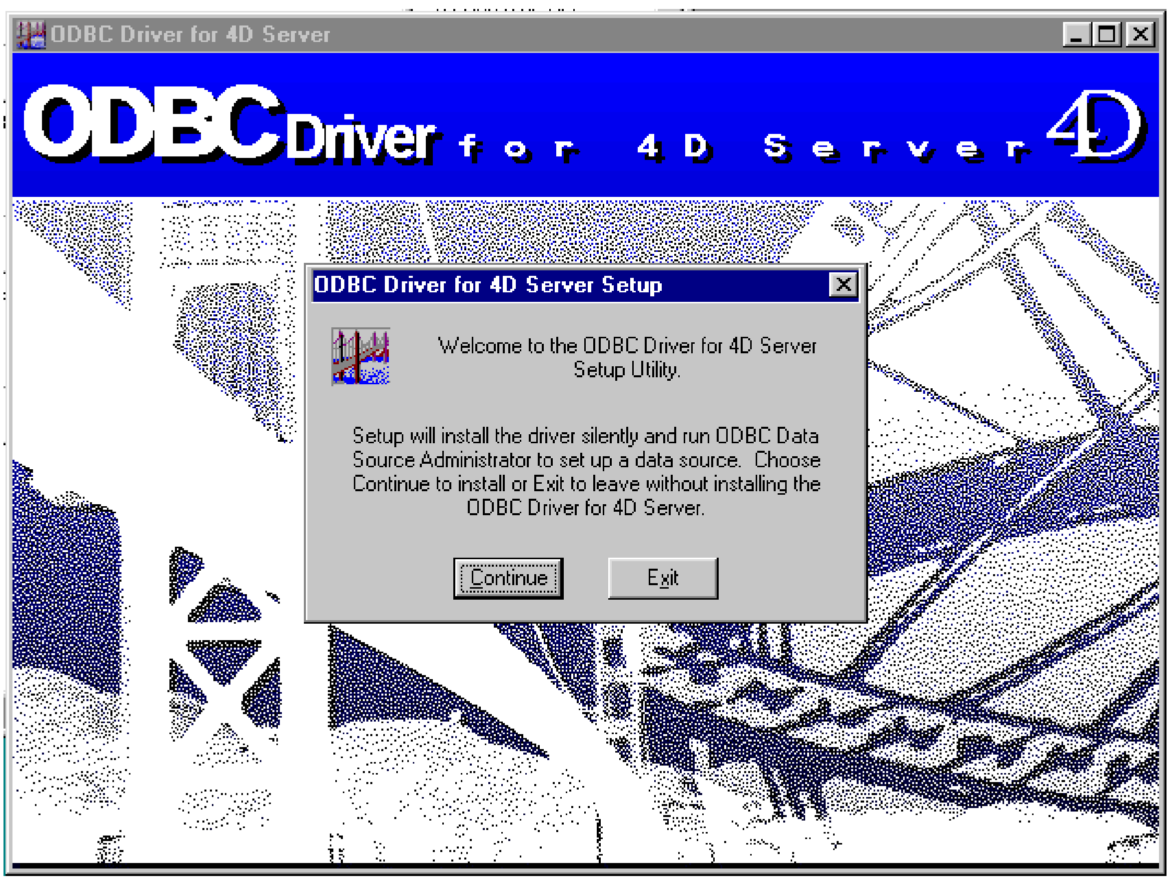
> NOTE: The numbers to the right of the *Table/field* popup menu are the table number and field number respectively.

Windows ODBC installation

Installing the ODBC Driver for 4D Server

The driver has to be installed either from a disk obtained from ACI, or from a downloaded executable file. The executable file is located online at http://www.acius.com/downloads/aciprod.html. If your Windows installation does not already have a 32-bit ODBC Driver Manager, the software will install the necessary components.

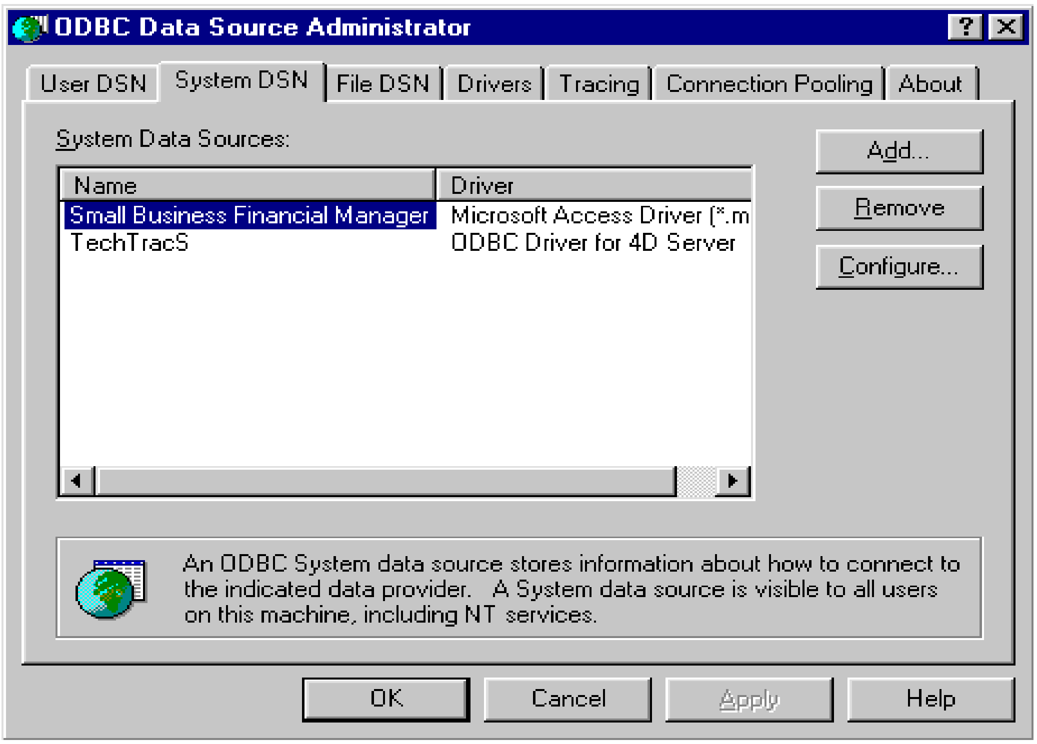
When the installation process begins, the main screen will be displayed:



After it's installed, a DSN (Data Source Name) will need to be set up. There are 3 types of data sources:

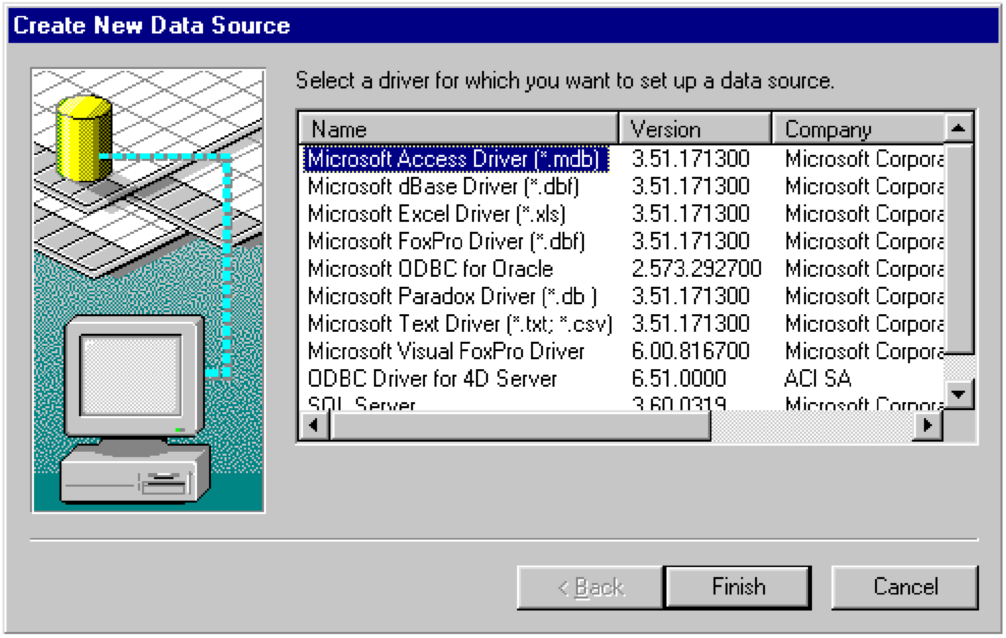
User DSN, File DSN and System DSN. For use with NASA TechTracS, System DSN should be selected. This allows all users on a particular machine, including NT services, access to this data source definition.

ODBC Data Source Administrator



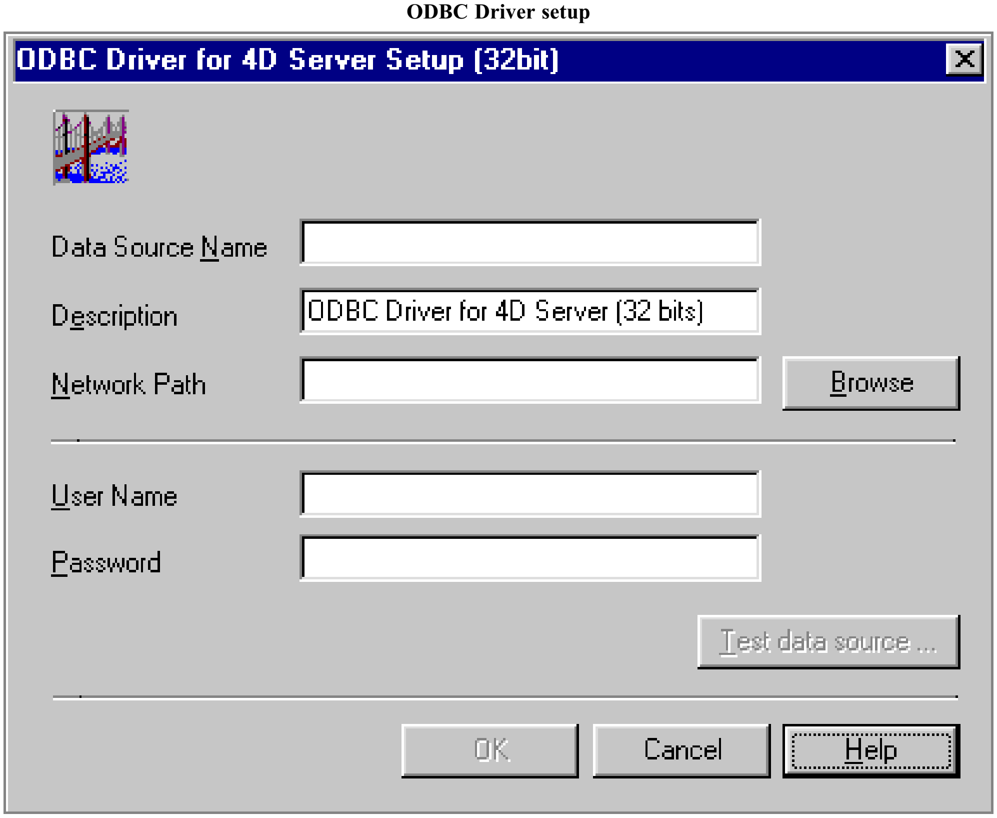
Select System DSN and then click on Add. The following screen will be displayed:

Creating a new data source



Select ODBC Driver for 4D Server and then click on Finish. The ODBC Driver for 4D Server dialog will appear:

ODBC Driver setup



Data Source Name – Enter the name you will retrieve this data source with (e.g. TechTracS). A DSN will need to be set up for each 4D Server database you wish to access.

Description – Enter a description for the data source or leave the default.

Network Path – Enter the location and the way to access your 4D Server data source. The network path depends on the network protocol used on your network:

- AppleTalk protocol: "Appletalk:DatabaseName@ZoneName"
- TCP protocol: type in "TCP/IP:Address, {PortNumber}" (e.g. "123.456.789.123, 14578")
- IPX protocol: type in "IPX:Address"

A 4D Server datasource may also be chosen by using the "Browse" button. However, after the selection of the 4D Server data source, DO NOT MODIFY MANUALLY the "Network Path" in the "API ODBC Driver for 4D Server (32-bit) Setup" dialog box.

You must then enter a username and password with which you will access the database.

Click on OK when finished.

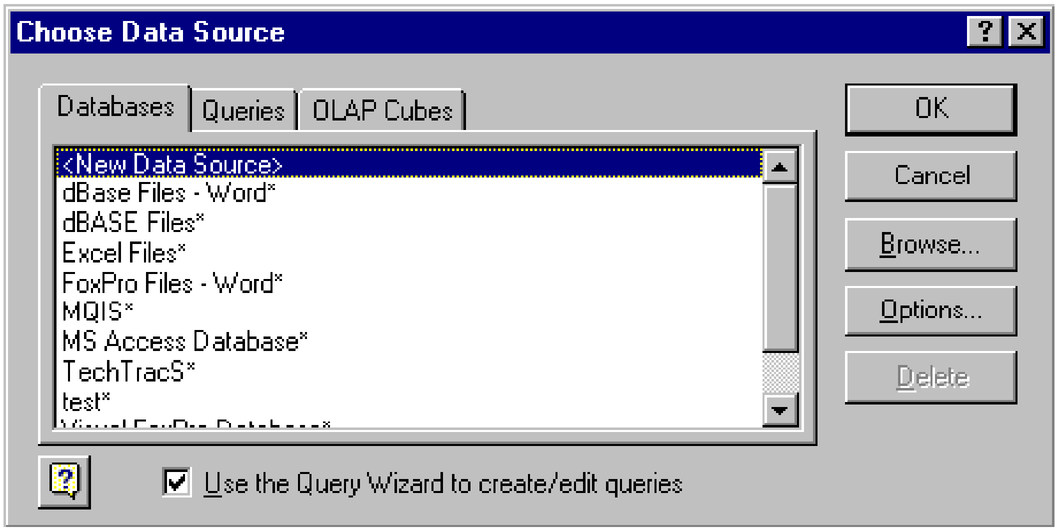
Using ODBC with Microsoft Excel

Microsoft Excel supports ODBC access through Microsoft Query. Query, a powerful tool for creating and testing queries, is available in Microsoft Word, Visual Basic, Active Server Pages and other environments as well.

To import 4D Server information into Excel, start out with a blank worksheet.

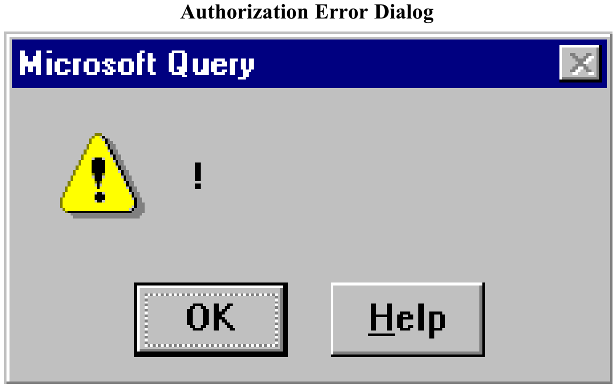
From the "Data" menu, select "Get External Data" and then "New Database Query..."

Choose Data Source Screen



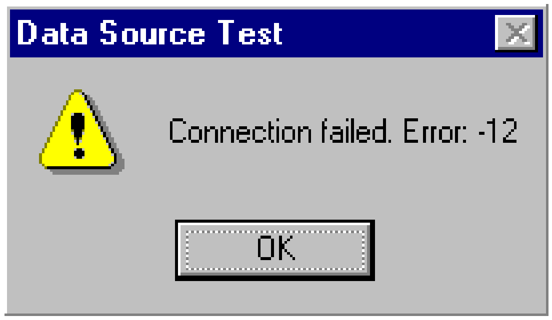
The Choose Data Source screen will be displayed. This allows selection of the data source. Previously we created an ODBC data source while installing the driver and named it TechTracS. Select the TechTracS data source (which represents the connection to the 4D Server).

Authorization Error Dialog



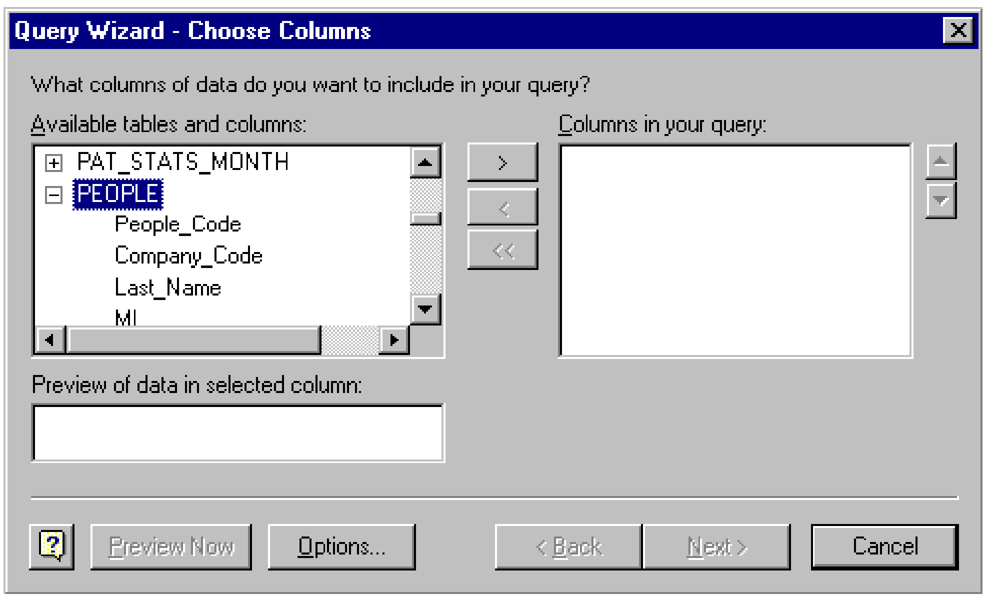
The user is then prompted for a valid username and password. If an incorrect username or password is entered, the authorization error message is displayed.

Connection Error Dialog



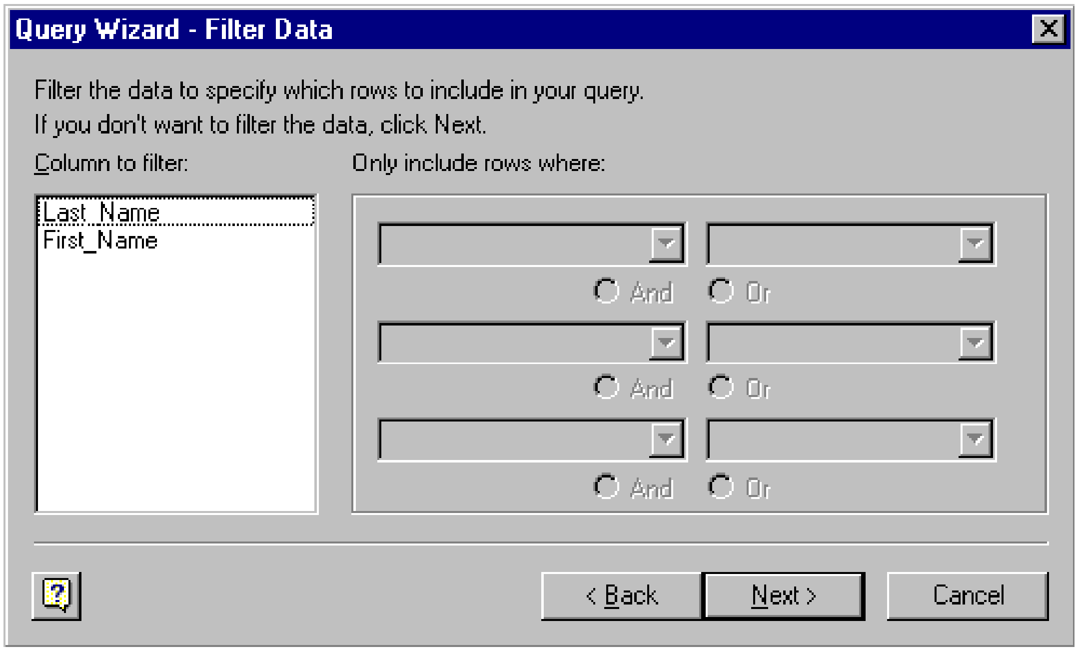
If the 4D Server is extremely busy or down, a connection error will be reported and the connection must be attempted later.

Query Wizard:Choose Columns



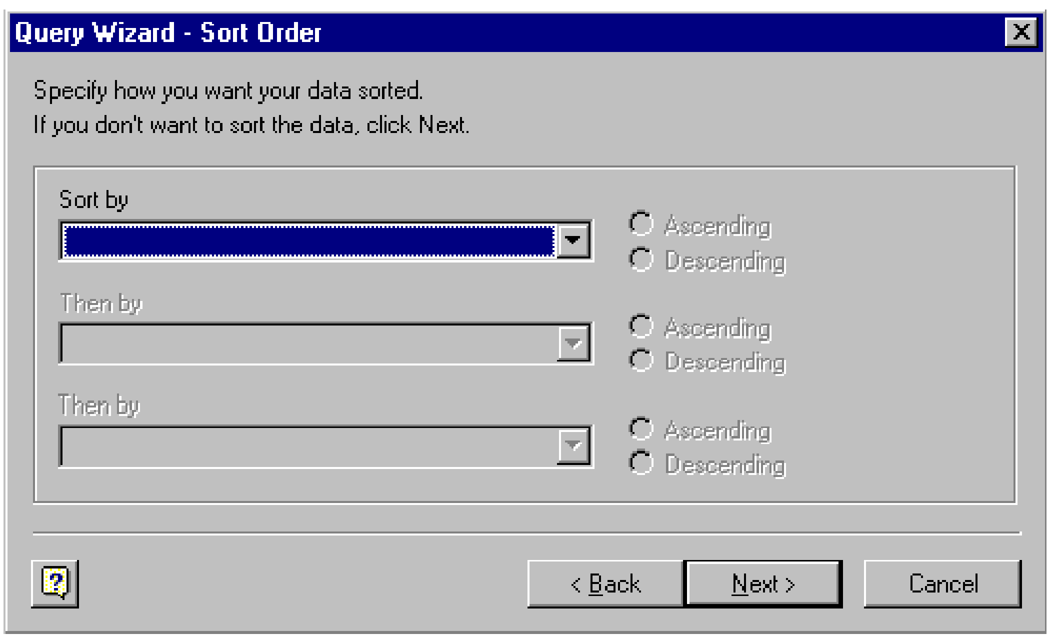
Once the ODBC connection to the 4D Server is made, the Choose Columns screen is displayed. This screen allows the choice of which fields and tables to import into Excel. Highlight the fields and tables and click the ">" button to include them in the report.

Filter screen



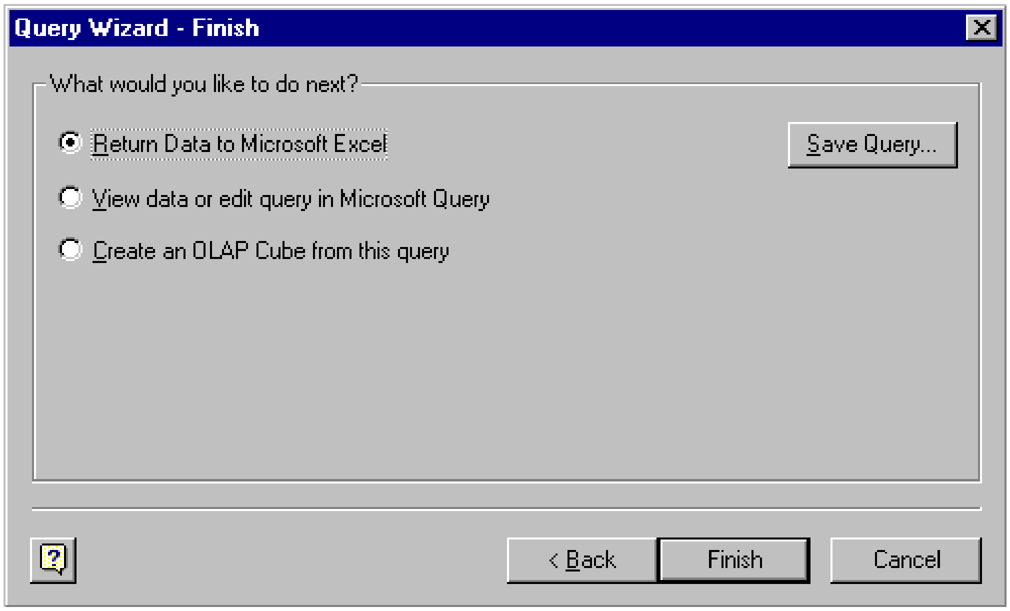
Next the Filter screen will be displayed. With this screen searches can be refined as in the TechTracS **Query Editor**.

Sort Order screen



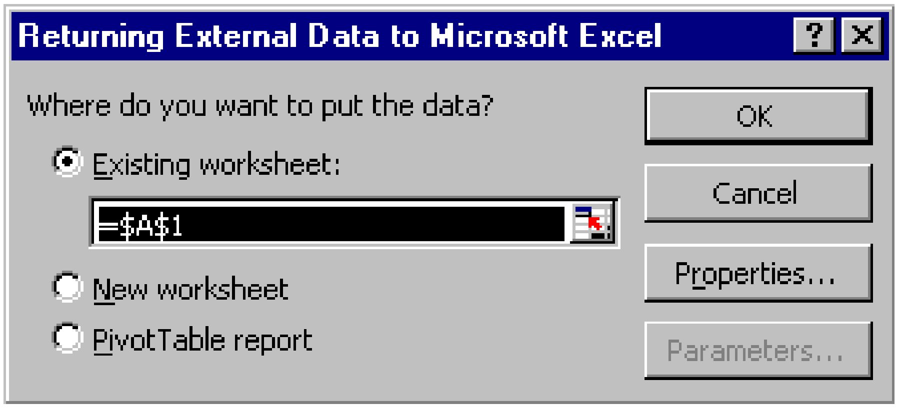
The resulting data can be sorted in ascending or descending order with the Sort Order dialog.

Finish Screen



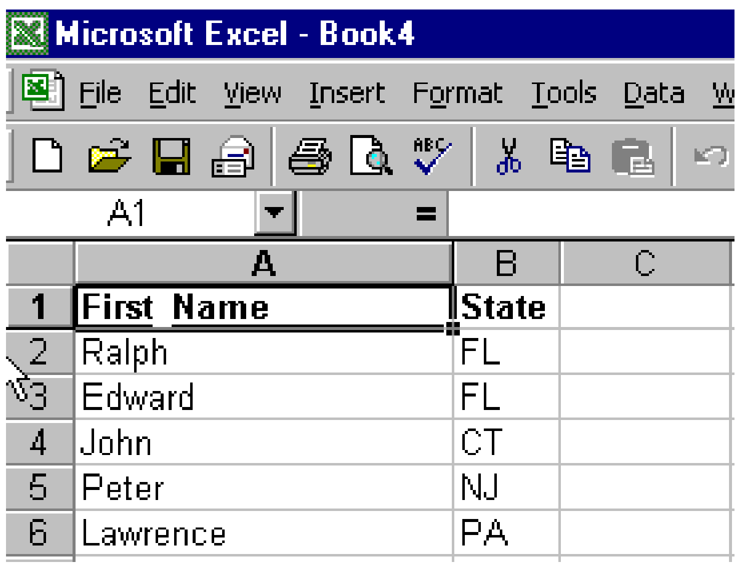
Afterwards, choose where to return the resulting data. In this case, the two relevant choices are to return the information to Excel and to view the data or edit the query in Microsoft Query.

Returning data to Microsoft Excel



On the finish screen, selecting "Return Data to Microsoft Excel" and clicking return displays this dialog. Select properties as well as choose which worksheet to import the resultant data. MS Query can be seen fetching the data. The resulting data will be returned:

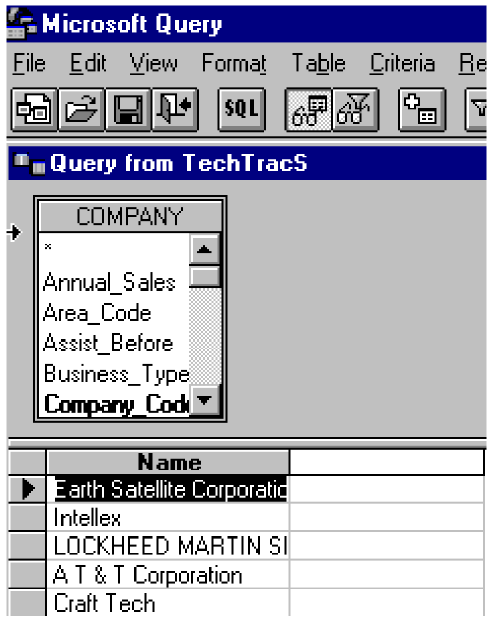
Search Results



View Data or Edit Query in Microsoft Query

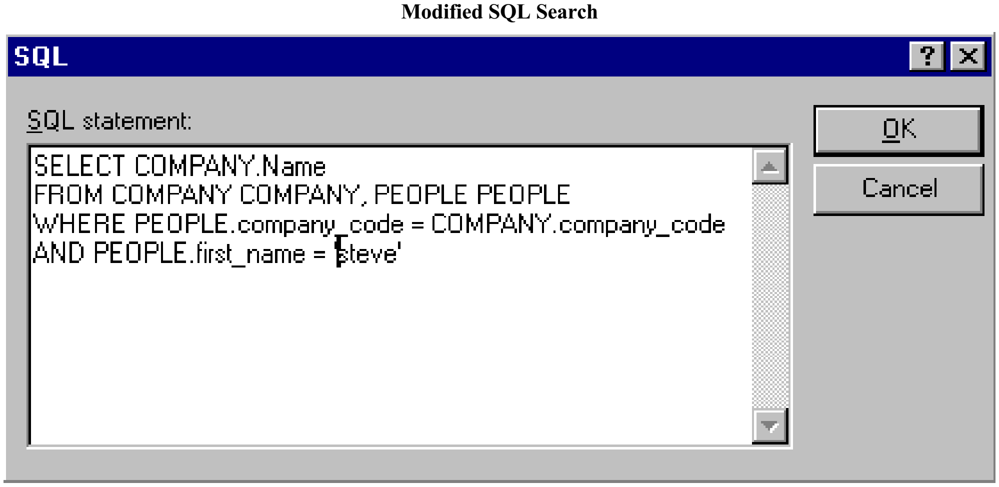
If one chooses to view the data or edit the query in Microsoft Query, very powerful selections can be made similar to the NASA TechTracS **Query Editor**.

Microsoft Query



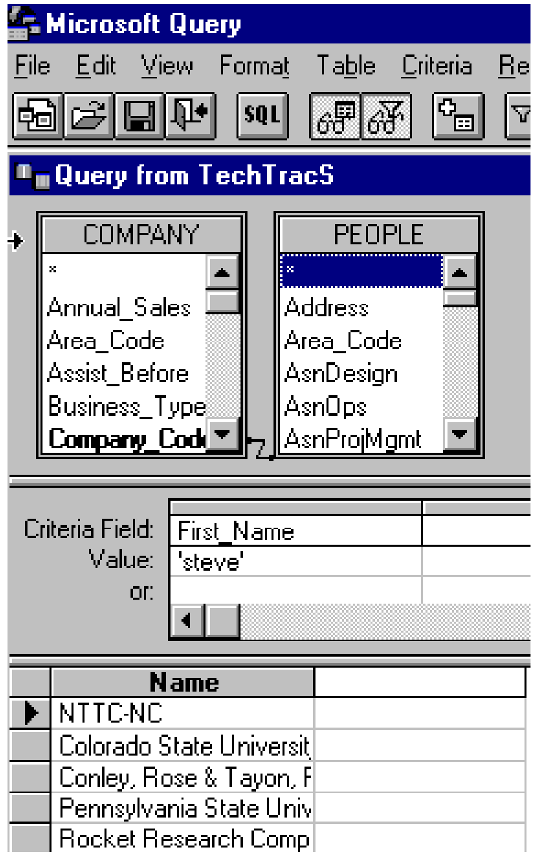
As an example, start off with [COMPANY]Name being displayed. Click on the "SQL" button in Microsoft Query to custom edit the SQL search:

Modified SQL Search



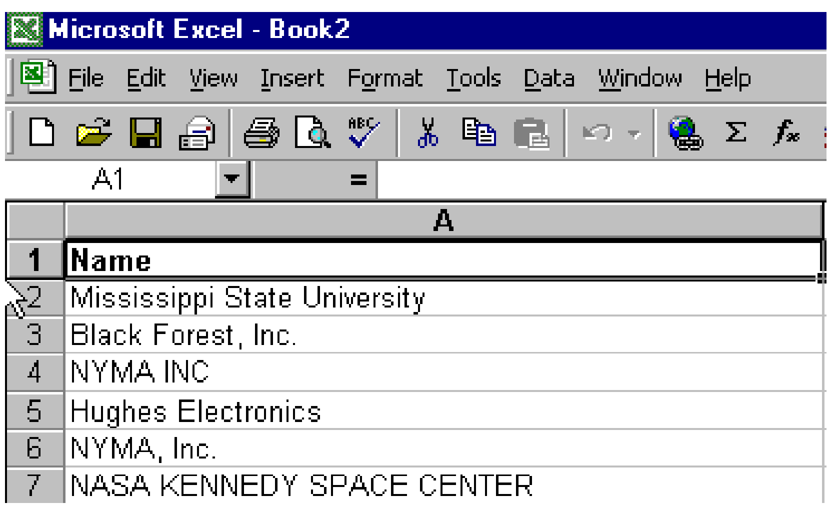
As part of the example, we want to list only those companies with employees whose first name is "Steve". The user can change the SQL query as they desire. The line "PEOPLE.first_name = 'Steve'" ensures all employees with the name of Steve will be in the result.

Microsoft Query



Afterwards, the join, or relation, between the COMPANY and PEOPLE tables in Microsoft Query can be seen. The relation between the two tables is represented graphically by a line.

Return information to Excel



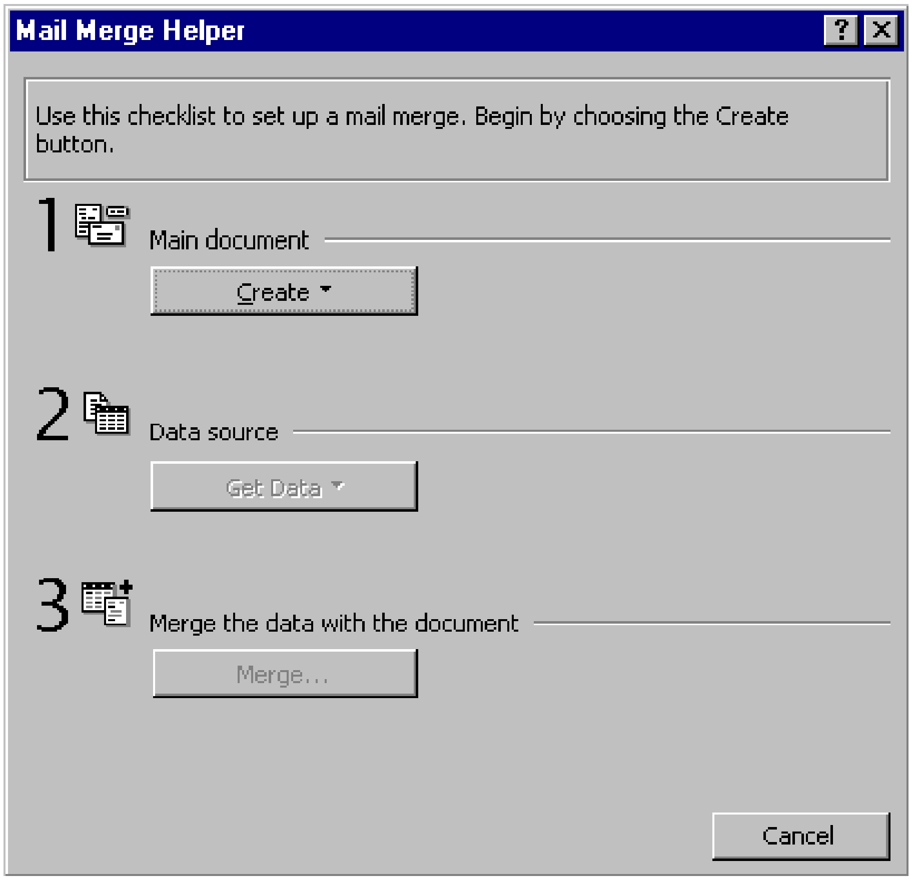
When the results are given, select "Return Data to Microsoft Excel" from the "File" menu to import the modified search into Excel.

Using ODBC with Microsoft Word

Importing data into Microsoft Word via ODBC is not much different than in Excel. The main use is mail merging.

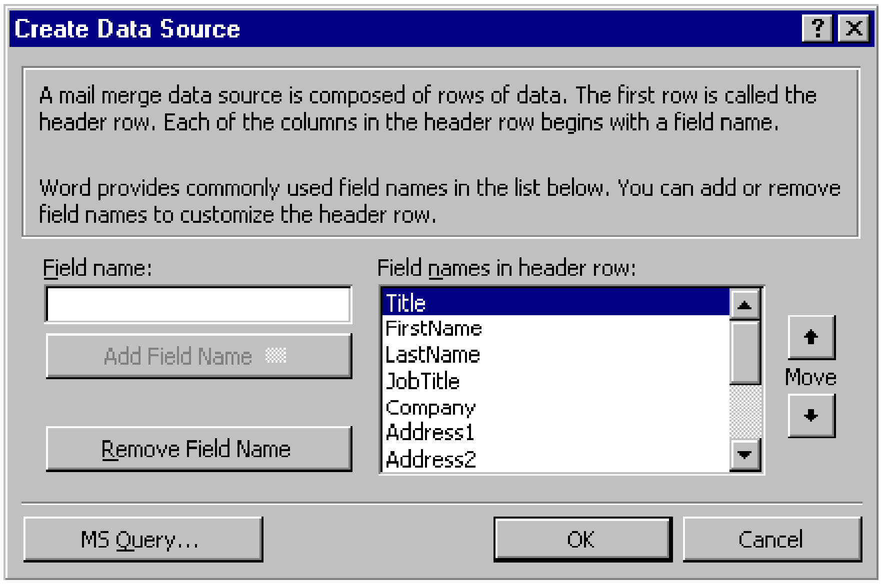
The easiest way to make mail merge documents is by using the Mail Merge Helper. Select "Tools" and then "Mail Merge" from within Word.

Mail Merge Helper



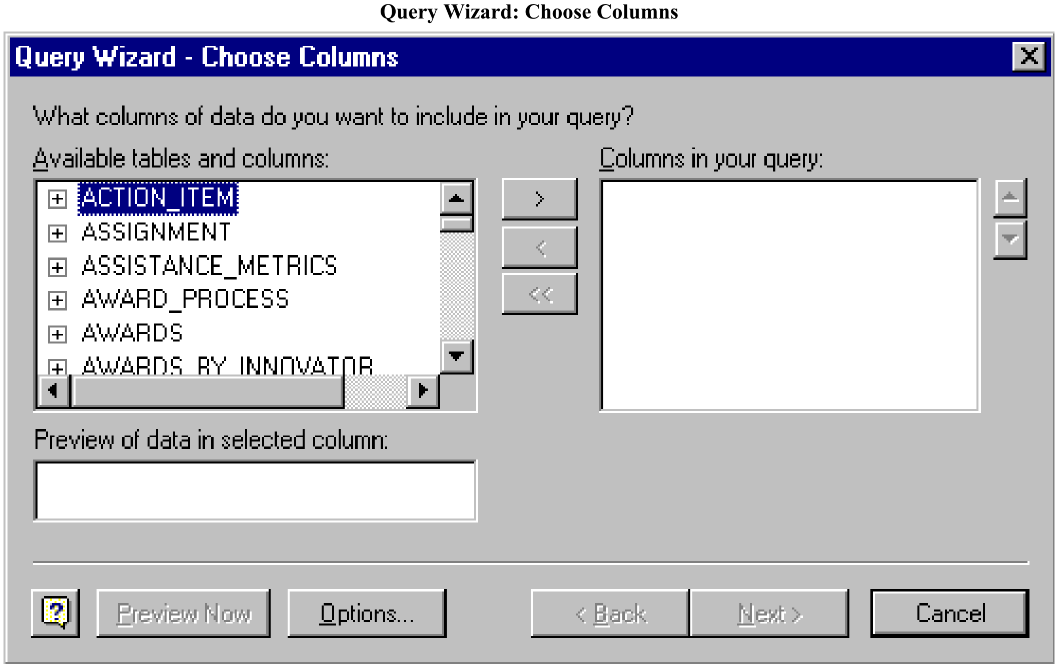
The main mail merge screen will be displayed. First create the main document. Then under "2) Data source", select "Create Data Source".

Creating a new datasource



On the bottom of the resulting Create New Data Source screen, click on the MS Query button. This allows the selection of a data source as we did in Excel.

Query Wizard: Choose Columns



After selection of the data source, choose which columns to include, as in Excel.

Returning data

Fields can be filtered and sorted. On the Finish screen, one can choose to return the information to Microsoft Word or view it in Microsoft Query. If "view data or edit query..." is chosen, one may refine it as we did in Excel. When finished, the user will be returned to Word's editing functions. To insert a field, select "Insert Merge Field" from the Merge Field Toolbar.

An example text might look like:

<<Address>>
<<City>>, <<State>> <<Zip>>

Dear resident,

We would like to thank you for being a wonderful tenant this year.

Thanks,

Shirley Realty

Reselect "Mail Merge" from "Tools" and the wizard will be ready to merge the document. Word will cycle through all resulting records and replace the words in brackets <<>> with the values in those fields. The user then has the choice of merging all the selected fields (in this case, <<Address>>, <<City>>, <<State>> and <<Zip>>) into a new document, a printer, or an email.

KNOWLEDGE SHARING SYSTEMS

http://www.knowledgesharing.com